

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 CAS 8,3 b

1. Edition

En

PES 6 A 95 D 420 LS 2551 RSV 375-1050A2B2033R

supersedes  
company Case  
engine A-504 BD

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,2-2,3) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,2+0,1	9,6-9,8	0,3 (0,6)			
375	8,2-8,3	1,6-2,2	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 28	375	7,6	1050	12,2-12,3
	X =						150	min. 19,0	425	12,9-13,5
ca. 51	11,2	1090-1100					375	8,0-8,2		
2a	4,0	1215-1245					530-570	= 3,0		
	1300	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to )							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1050	96,0-98,0 (93,0-101,0)	1090-1100*	800	95,0-99,0 (92,0-102,0)	100	130,0-150,0	0 -	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2  
12.82

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Testoil-ISO 4113

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 GUS 31,8 a

2. Edition

En

**Testoil-ISO 4113**

PE 12 P 130 A 120 RS 3094

RQV 350-900 PA 602

supersedes 82

company Guascor

engine: E 318

1 -12 - 9 - 4 - 5 - 8 -11 - 2 - 3 -10 - 7 - 6  
 0 -45 -50 -105-120-165-180-225-240-285-300-345°  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,8 - 2,9 \\ (2,75-2,95) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	9,4-9,5	25,5 - 25,9	0,5(0,9)			
350	4,0-4,2	2,1 - 2,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	940	15,2-17,8	-	-	-	ca. 10	100	min.5,6	300	1,0-1,2
ca. 60	8,4 4,0 1100	940-950 970-1000 0 - 1,0					350 420-480 = 2,0 mm	4,0-4,2	500 700 900	2,8-3,2 4,7-5,1 7,7

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery Idle switching point (6)	Torque-control travel Control rod travel mm (5)		
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	mm 9
900	255,0-259,0 (252,0-262,0)	940-950 *	-	-	100	19,5 - 21,0	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 e

5. Edition

En

superseded by 82  
company Scania  
engine D8

Testoil-ISO 4113

PE 6 P 110 A 720 RS 393

RQV 200-1200 PA 467 R.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,0 - 3,1$  mm (from BDC)  
(2,95 - 3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,0 <sup>+0,1</sup>	9,5 - 9,7	0,4(0,8)			2,5 <sup>+0,1</sup> (max. 2,2 - 2,9)
225	7,0-7,2	0,8 - 1,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200 1500	15,2-17,8 0 - 1	-	-	-	ca. 14	100 225	min. 8,8 7,0-7,2	200 550 850 1200	1,0-1,2 4,2-4,8 5,8-6,0 8,1
ca. 61	11,0 4,0	1240-1250 1375-1405				260-360 ③a				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	95,0 - 97,0 (92,0 - 100,0)	1240-1250 *	600	88,5 - 91,5 (85,5 - 94,5)	100 225	170,0-210,0 20,0 - 21,0 mm RW 8,0-12,0	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.82

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 10,0 e 2

1. Edition

En

PE 6 P 110 A 320 RS 3109 RSV 200-900 P1/421

supersedes  
company Volvo-Penta  
engine TD 100 G  
203 kW (276 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,5 - 3,6$  mm (from BCRW 9,0-12,0 mm)  
(3,45-3,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,6+0,1	16,6-16,8	0,4 (0,8)			
250	4,2-4,4	1,7-2,1	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control lever deflection in degrees rev/min 7 8 9			3 Torque control Control rod travel rev/min mm 10 11	
loose	Control rod travel mm 2	Control rod travel mm rev/min 3								
	800	0,3-1,0 x = 4,0	-	-	-	ca. 19	250	3,8	-	-
ca. 46	11,6	940-950					250	4,2-4,4		
2a	4,0	970-1000					270-330	=2,0		
	1140	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to ) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel rev/min mm 8 9	
	cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7		
700	166,0-168,0 (163,0-171,0)	940-970*	-	-	-	100	20,0-21,0 mmRW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 10,0

1. Edition

En

PE 6 P 110 A 320 RS 3109

RSV 200-750 P 4/421 R

supersedes

company Volvo-Penta  
engine TD 100 GG

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (3,45-3,65) mm (from BDC) RW 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,8+0,1	17,1-17,3	0,4 (0,8)			
250	4,1-4,3	1,7-2,1	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	250	3,7	-	-
	x = 3,5						100	min. 19,0		
ca. 43	11,8	745-755					250	4,1-4,3		
2a	4,0	780-810					270-380	=2,0		
	940	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min		6 Rotational-speed limit Note: changed to ... rev/min		3a Fuel delivery characteristics rev/min		Starting fuel delivery Idle		4a Idle stop rev/min	
1	cm <sup>3</sup> /1000 strokes 2	3	4	5	6	7	8	9	Control rod travel mm 9
700	171,0-173,0 (168,0-176,0)	745-755	-	-	100	20,0-21,0 mm RW	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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11.32

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 10,0 e

1. Edition

En

PE 6 P 110 A 320 RS 3109 Z RSV 200-900 P 1/421

supersedes

company Volvo-Penta

engine TMD 100 B

177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,5-3,6}{(3,45-3,65)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	16,1-16,3	0,4 (0,8)			
250	4,2-4,4	1,7-2,1	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min Control rod travel mm 7 8 9			3 Torque control rev/min Control rod travel mm 10 11	
loose	800	0,3-1,0	-	-	-	ca. 19	250	3,7-3,9	-	-
	x = 4,0						250	4,2-4,4		
ca. 46	11,0	940-950					270-330	=2,0		
2a	4,0	970-1000								
	1140	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to ) rev/min 3		3a Fuel delivery characteristics rev/min cm <sup>3</sup> /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm <sup>3</sup> /1000 strokes 6 7		5 4a Idle stop rev/min Control rod travel mm 8 9	
700	161,0-163,0 (158,0-166,0)	940-950	-	-	-	100	20,0-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

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11.82

Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 3,3a

1. Edition

En

PES3A95D 320 RS 2655 RSV 325-1150 A 2 B 2178-1R

supersedes  
company Valmet  
engine 311 DS 6

1 - 2 - 3 je  $120^\circ \pm 0,5^\circ (+0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $(2,45-2,65)$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,0+0,1	8,3 - 8,5	0,3 (0,6)			
325	7,1-7,3	0,9 - 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control-lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	
loose	800 0,3-1,0 X = 6,0		-	-	-	ca. 28	325 6,7		1150 10,0-10,1	
ca. 54	9,0 1190-1200 4,0 1290-1320 1455 0,3 -1,7						100 min.19,5 325 7,1-7,3 650-710 = 2,0		500 11,3-11,4 915 10,6-10,8	

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery 5 Idle rev/min 6		4a Idle stop Control rod travel mm 9	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7		rev/min 8	
1150	82,5-84,5 (80,5-86,5)	1190-1200*	500	83,0-86,0 (81,0-88,0)		100	67,5-77,5 =12,0-12,6 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

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Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 8,3i2  
2. Edition

En

Testoil-ISO 4113

PE 6 A 90 D 410 RS 2524

RSV 250-900 A7B 2060 DL

superse<sup>8</sup> 80  
company DAF  
engine DH 825

Test the manifold-pressure compensator and cold-start according to Service Information. Specifications apply to test tubing 1 680 750 015.  
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,25-2,45) Port closing difference between control-rod travel 9 mm  
2,30-2,40 RW 9 and max. = 4,5 - 5,5°.

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
900	10,3 ± 0,1	8,0 - 8,1	0,3(0,45)			
250	6,5-6,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control lever deflection in degrees 7		rev/min 8		3 Torque control Control rod travel rev/min mm 10 11 ±0,1	
Control rod travel mm 2	Control rod travel mm rev/min 3							Control rod travel mm 9			
loose	800 0,3-1,0 x = 4,0		-	-	-	ca. 18		250 5,5		500 10,3	
ca. 53	940-950=9,3 945-975=4,0 1100=0,3-1,7							250 5,9-6,1 290-350 = 2,0		300 11,2	

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to ) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel mm 9	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7		rev/min 8	
900	80,5 - 81,5 (78,5 - 83,5)	940-950*	-	-	-	100	19,5-21,0 mm RW **	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

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# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 i 3

4. Edition

En

**Testoil-ISO 4113**

PE 6 A 90 D 410 RS 2524 RSV 250-750 A 7 B 2124 L

superseded 8.82

company DAF

engine DH, DU 825

Test the manifold-preeure compensator and cold-start according to Service Information. Specifications apply to test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $(2,25-2,4)$   $2,30-2,40$  mm (from BDC) RW = 9,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	9,4-9,5	7,7 - 7,9	0,4(0,55)			
250	6,3-6,5	1,8 - 2,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Port closing difference between control-rod travel 9 and max. = 3,0-4,0°.

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 16	250	6,4	750	9,4-9,5
	x =	3,25					100	min. 19,0	700	9,4-9,7
							250	**		
							260-320	2,0		
							380	max. 1,0		
⑤ ca. 40	770-780	= 8,4								
	795-815	= 4,0								
	955-0	3-1,7								

\*\* Set idle-speed auxiliary spring at 2,0 mm control-rod travel, then 1/2 turn back.

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	5	4	5	6	7	8	9
750	77,0 - 79,0 (75,0 - 81,0)	760-770*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

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A9

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 n

3. Edition

En

**Testoil-ISO 4113**

PE 6 A 95 D 410 RS 2575 RSV 250-750 A7B2124L

supersede 2.82

company DAF

engine DH, DU 825

Specifications apply to test tubing 1 680 750 015

Port closing difference between control-rod travel 9  
and max. = 3,0-4,0°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,0 \\ 2,1 \end{matrix}$  (1,95-2,15) mm (from BDC) RW 9,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,5+0,1	9,9 - 10,1	0,4(0,7)			
250	6,0-6,2	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 15	250	6,1	750	12,5+0,1
	x =	4,25					100	min. 19,0	700	12,5+0,3
							250	**		
ca. 40	11,5	770-780					260-320	= 2,0		
⑤	4,0	795-815					380	max. 1,0		
	955	0,3-1,7								

\*\* Set idle-speed auxiliary spring at 2,0 mm control-rod travel,  
then 1/2 turn back.

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		5a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3		4	5	6	7	8	9
750	98,5 - 100,5 (96,5 - 102,5)	770-780*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2  
10,82



# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 b 1  
4. Edition

En

PES 6 P 120 A 320 RS 417 RQV 300-1150 PA 527 K  
Values apply to  
engine nozzle-and-holder assemblies 1 688 901 019  
and engine fuel-injection tubing 1 680 750 067

supersedes 10.82  
company: RVI  
engine: MIDS 062030  
158 kW (215 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing mark 9.5° camshaft after  
port closing of cylinder 1.

Port closing at prestroke 2,8-2,9  
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	8,5-8,6	14,8-15,0	0,5(0,9)			
600	2,7-2,8	1,3- 1,9	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 10	100 300	min. 5,7 4,1-4,3	250 550	0,4-0,7 3,6-3,7
ca. 58	7,5 4,0 1400	1205-1215 1275-1305 0-1,0				330-345 (3a)			850 1150	5,1-5,2 7,5

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	147,5-149,5 (144,5-152,5)	1205-1215*	750 500	132,0-138,0 (129,0-141,0) 80,0-86,0 (77,0-89,0)	100 300	120,0-140,0 18,0- 24,0 220 (100)	1150 350 750 500	8,5+0,1 7,0+0,4 7,7+0,2 7,2+0,3

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,0 4  
1. Edition

En

PES 4A 90 D 410 RS 2294 RSV 350-1400 AOB 2006L

supersedes  
company Daimler-Benz  
OM 314  
engine 63 kW (85PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1380	10,4+0,1	6,4-6,5	0,3(0,45)			
350	9,2-9,4	2,4-3,0	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 31	350	9,3	-	-
	X=						100	min. 19,0		
ca. 62	9,4	1420-1430					350	9,2-9,4		
2a	4,0	1490-1505					510-570	= 2,0**		
	1600	0,3- 1,7					650	max. 1,0		

The numbers denote the sequence of the tests.

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min				Idle			
rev/min	cm³/1000 strokes			rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1380	63,5-64,5 (61,5-66,5)	1420-1430*	-	-	100	14,7-15,3 mm RW	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

Set idle-speed auxiliary spring at 2,0 mm control-rod travel,  
then 1/2 turn back.

10.82

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4

4. Edition:

En

Testoil-ISO 4113

PES 6 A 85 D 320/3 RS 2339

RSV 350-1250 A 1 B 279 R

superseded 8.80

company Motori VM

engine 106 SU, 956 SU

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15)  
3,00-3,10 RW9 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	9,7-9,8	5,3 - 5,4	0,3(0,45)			
350	7,3-7,5	1,0 - 1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm/rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 x = 2,75				ca.16	350	5,5		
ca.58 2a		1290-1300=8,7 1300-1330=4,0 1465=0,3-1,7					100 350 500 405-465	min.19 5,9-6,1 max.1,0 = 2,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery, Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to )							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
750	53,5 - 54,5 (51,5 - 56,5)	1290-1300*			100	110,0-130,0 = 19,0 - 21,0 mm	1250 500 400	9,7-9,8 9,7-9,9 0,8-11,4	

Checking values in brackets

\* 1 mm less control rod travel than col 2

Port closing difference between control-rod travel 9 mm  
and max. = 6.0-7.0°.

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11.82

A13

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 8,3i

3. Edition

En

supersedes 8.80  
company DAF  
engine DH 825

**Testoil-ISO 4113**

PE 6 A 90 D 410 RS 2524 RQ 225/1200 AB 1008 L

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,30-2,40 RW9 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,4-9,5	7,0 - 7,1	0,3(0,45)			
225	6,5-6,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Port closing difference between control-rod travel 9 mm and max. = 4,5 - 5,5°.

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point		Test specifications				Test specifications				Control rod travel	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0	8,4	1245-1260	225	8,7	100	min.10,2	-	-
VH = max. 46°				4,0	1325-1355			225	8,6 - 8,8		
				1500	0 - 1,0			410-450	2,0		
								550	max. 1,0		

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1000	70,0 - 71,0 (68,0 - 73,0)	600	-	-	-	-

Checking values in brackets

11.82

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②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 5,9 e1

1. Edition

En

PE 6 AM 70D 412 RS 1001 RQ 250/1275 AB 344 DL

supersedes

company MAN

engine D 0026 M8A

Position "Diesel" = lever in contact  
Position "Gasoline" = lever not in contact

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (1,9-2,1) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1275	12,0+0,1	4,7-4,8	0,3(0,3)			
250	7,9-8,1	1,0-1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11	12				
600	15,6-16,4	600	16,0	11,0 4,0 1450	1320-1335 1375-1405 0 - 1,0	250	6,0	100 250 365-405 450	min. 7,5 5,9-6,1 = 2,0 max. 1,0	1275 600 860 1145	12,0-12,1 12,9-13,0 12,8-13,0 12,2-12,5				

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 g 1

2. Edition

En

PES3A85D410/3 RS 2642 RSV325-1150A8B2102-1L

1 - 3 - 2 je  $120^\circ \pm 0,5^\circ (\pm 0,75^\circ)$ 

supersedes

company

engine

6.82

KHD

F3L 913

42 kW (57 PS)<sub>1</sub>

2300 min

Tractor D 6007-S23

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $(2,45-2,65)$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,8+0,1	6,6-6,7	0,3 (0,45)			
325	8,9-9,1	1,7-2,3	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.20	325	8,5	1150	11,5+0,1
X=										
**										
⑤ ca.54	10,2	1190-1200								
	4,0	1265-1295								
	1350	0,3-1,7								

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 r 4

3. Edition

En

PES 6 A 90 D 410 RS 2293 RSV 350-750 A0B 741 L

supersedes 6.82

company Daimler-Benz

engine OM 352 A

62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,15-2,25}{(2,10-2,30)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,9+0,1	6,3 - 6,5	0,3(0,45)			
350	7,9-8,1	1,9 - 2,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0	-	-	-	ca. 15	350	8,0	-	-
	x = 20							**		
ca. 26 ⑤	750	9,9								
	788-796	4,0								
	820	0,3-1,7								

\*\* Set auxiliary idle spring at 2.0 mm control-rod travel.

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	63,0-65,0 (61,0-67,0)	750 *		-	-	100	78,0-88,0	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

# Test Specifications Fuel Injection Pumps and Governors

WPD 001/4 DAF 6,2i3

2. Edition

En

superseded 6,81

company DAF  
engine DT 615, DF 615PE 6 A 90 D 320 RS 2547  
PE 6 A 90 D 320 RS 2577

RSV 250-900 A7B 2061 R

Inlet pressure 1,5 bar!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,2-2,3</sup> (2,15-2,35) mm (from BDC) RW 9 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	10,5+0,1	8,5 - 8,6	0,3(0,45)			
250	5,9-6,1	1,3 - 1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Port closing difference between control-rod travel 9 mm  
and max. = 2.5 - 3.5° camshaft.

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 19	250	5,5	650	10,5+0,1
	X =	4,0							370	11,7+0,5
ca. 53	9,5	940-950					250	5,9-6,1		
⑤	4,0	945-975					290-350	2,0mm		
	1100	0,3 - 1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
900	85,0 - 86,0 (83,0 - 88,0)	940-950*	-	-	100	19,5-21,0 mm R/W	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2



# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 HOR 2,4 a

2. Edition

En

supersedes 2.82

company: Holder

engine: VD 6001-4

Tractor A 60

PES 3 A 80 D 410/3 RS 1336

RSV 400-1250 AOB 1123 L

1 - 2 - 3 je  $120^\circ \pm 0,5^\circ (\pm 0,75^\circ)$ 

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 1,7 - 1,8 \\ (1,65 - 1,85) \end{matrix}$  mm (from BDC) RW 9 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1230	11,0+0,1	7,0 - 7,1	0,2(0,35)			
400	7,9-8,1	0,9 - 1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in [ ]:

Port closing difference between control-rod travel 9 mm and max. = 9-10° camshaft.

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0	-	-	-	ca.24	400	7,5	-	-
	X =	4,25					100	min.19,0		
							400	7,9-8,1		
							550-610	2,0mm		
ca. 48	10,0	1270-1280								
⑤	4,0	1335-1365								
	1500	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	5	6	7	8	9
1230	70,0 - 71,0 (68,5 - 72,5)	1270-1280 *	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2  
11,82

Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCL 7,4 b  
1. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2614

RSV 325-1100 A 1 B 2111 L

supersedes  
company Schlüter  
engine SDMT 110 W 6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (1,75-1,95)  
1,80-1,90 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,6+0,1	10,8 - 11,0	0,3(0,6)			
325	7,4-7,6	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees 7 rev/min 8			3 Torque control Control rod travel rev/min mm 10 11 +0,1	
Control rod travel mm 2	Control rod travel mm rev/min 3					Control rod travel mm 9				
100se	800 0,3-1,0 X = 5,0					ca. 27	325 7,0	1100	12,6	
ca. 61	1140-1150 = 11,6 1220-1250 = 4,0 1385 = 0,3-1,7						100 min. 19 325 7,4-7,6 625 0 - 1	785 500	12,7 13,0	

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel mm 8 9	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7			
1100	108,0 - 110,0 (106,0 - 112,0)	1140-1150*	500	102,5 - 105,5 (100,5 - 107,5)		100	19-21 mm RW	325	7,5

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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A20

A20

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 8,8 a 2  
1. Edition

En

PES 4 A 95 D 410 RS 2424 RSV 300-900 A7B 616 DL

supersedes  
company TAM  
engine F4L413R

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 1,75,1,85 \\ (1,70-1,90) \end{matrix}$  mm (from BDC) RW 10,5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	8,8-8,9	7,6-7,8	0,3 (0,6)			
300	5,9-6,1	0,7-1,3	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 27	300	5,5	900	8,8-8,9
	X = 5,5						100	min. 19,0	600	9,4-9,6
							300	5,9-6,1	400	9,8-9,9
ca. 58	7,8	940-950					435-495	= 2,0		
2a	4,0	945-975					600	max. 1,0		
	100	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		5 Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ) rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
900	75,5-77,5	940-950*	-	-	100	115,0-125,0 = 12,5-13,1 mm RW	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 EIC 3,9 f

1. Edition

En

PES 4 A 80 D 320 RS 2651 RSV 300-1075 A1B 2175 R

supersedes -  
company **Eicher**  
engine: EDL 4-1

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,15-2,25}{(2,1 - 2,3)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1075	10,5+0,1	6,2-6,3	0,2 (0,35)			
300	9,4-9,6	3,0-4,0	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in  .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 26	300	9,0	1075	10,5+0,1
	X = 5,5						100	min 19,5	500	11,3+0,1
							300	9,4-9,6	825	10,8+0,2
ca. 57	9,5	1115-1125					450-510	=2,0		
⑤	4,0	1165-1195								
	1330	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1075	62,0-63,0 (60,5-64,5)	1115-1125*	600	64,5-66,5 (63,0-68,0)	100	17,4-18,0 mm RW	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 11,1 g

2. Edition

En

PES 6 A 95 D 410 LS 2485

RQ 250/1100 AB965D

supersedes 2.76

company M A N

engine D 2566 M/MF  
(240 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>1,50-1,60</sup>  
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,7+0,1	12,3 - 12,5	0,3(0,6)			
250	6,0-6,2	1,1 - 1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	1140	15,6-16,0	560	0	150	7,0-8,1	-	-
				1180	6,6-12,8			250	5,3-7,5		
				1220	0 - 7			350	2,4-4,6		
				1260	0			460	0		

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160(1140-1165) 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7
1100	123,0 - 125,0 (121,0 - 127,0)		500	113,5 - 118,5 (111,5 - 120,5)	100	108,5-116,5 = 12,6-13,0 mm RW

Checking values in brackets

11.82

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# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 14,6 n

2. Edition

En

supersedes 2.81  
company Daimler-Benz  
engine OM 420  
154 kW (209 PS)

PE 8 P 110 A 320 LS 3802

RQ 750 PA 374 R

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1 je  $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$ 
**Testoil-ISO 4113**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,9+0,1	14,2 - 14,4	0,4(0,8)			
300	8,3-8,4	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	12,9 6,1	750-755 780-790	-	-	-	-	-	-

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /100 strokes 7
700	142,0 - 144,0 (139,0 - 147,0)	-	-	-	100	130,0 - 150,0

Checking values in brackets

11.82

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 p 1

1. Edition

En

PES 4 A 90 D 410 RS 2294 RSV 750-1400 AOB 2032 DL

supersedes

company Daimler-Benz  
OM 314  
engine 62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$  mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1345	10,5 + 0,1	6,8-6,9	0,3(0,15)			
750	5,9-6,1	1,7-2,3	0,2 (0,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.30	750	6,0	450	12,2+0,2
	x =	3,75					100	min.19,0	600	10,5+0,2
ca.51	9,5	1385-1390					750	5,9-6,1		
2a	4,0	1435-1440					765-795	= 2,0		
	1500	0,3 - 1,7					820	max. 1,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1345	68,0-69,0 (66,0-71,0)	1385-1390*	-	-	-	100	73,0-83,0	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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B1

# Test Specifications Fuel Injection Pumps (1A) and Governors

**40**  
WPP 001/4 MB 3,8 p  
1. Edition

En

PES 4 A 90 D 4 10 RS 2294 RSV 750-1400 AOB 2022 DL

supersedes  
Daimler-Benz  
company  
engine OM 314  
62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,15-2,25$   
( $2,10-2,30$ ) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1345	10,5+0,1	7,2-7,3	0,3(0,45)			
750	5,9-6,1	1,7-2,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0	-	-	-	ca. 30	750	6,0	450	12,2+0,2
	X = 3,75						100	min. 19,0	600	10,5+0,2
ca. 51	9,5	1385-1390					750	5,9-6,1		
	3,6	1435-1440					765-795	= 2,0		
②a	1500	0,3-1,7					820	max. 1,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to )				Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1345	71,5-72,5 (69,5-74,5)	1385-1390*	-	-	100	85,0-92,0 = 14,3-14,7 mm RW	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2  
11.82

Testoil-ISO 4113

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# Test Specifications

## Fuel Injection Pumps and Governors

WPP 001/4 MB 11,0 c 2

1. Edition

En

PE 6 P 110 A 320 LS 3805 RQV 300-1150 PA 524-4

supersedes  
company Daimler-Benz  
OM 421  
engine 159 kW (216 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

### A. Fuel Injection Pump Settings

Port closing at prestroke  $4,0-4,1$  mm (from BDC) RW  $9,0 - 12,0$  mm  
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,5+0,1	12,8 - 13,0	0,4 (0,8)			
300	7,7-7,9	1,2 - 1,8	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 19	100 300	min. 10,0 8,3-8,5	250 550 850 1150	1,0-1,2 3,4-3,7 4,9-5,3 7,7
ca. 65	11,5 4,0 1400	1190-1200 1240-1270 0 - 1,0				330-730				

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	128,0-130,0 (125,0-133,0)	1190-1200*	600	120,0-124,0 (117,0-127,0)	100	130,0-150,0	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2  
11.82

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①

# Test Specifications

## Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 n 10

1. Edition

En

PES 6 A 90 D 410 RS 2293 RQV 300-1425 AB 780 L

781 L

925 L

supersedes

company Daimler-Benz

engine OM 352

96 kW (131 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

### A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,7-9,8	6,2 - 6,3	0,3(0,45)			
300	7,5-7,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

.. 780 L, ..781 L u. ..925 L

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1470	15,2-17,8	-	-	-	ca. 14	100	min. 9,1	250	0,6-1,0
ca. 59	8,7	1455-1465					300	7,5-7,7	640	3,2-3,6
	4,0	1550-1580					875	max. 1,0	1035	5,5-5,8
	1700	0 - 1,0				370-520			1425	8,1

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	61,5 - 62,5 (59,5-64,5)	1455 - 1465*	-	-	100	71,0-8,10 = 13,9-14,3 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 3,8 n 9

2. Edition

En

PES 4 A 90 D 410 RS 2570

RQV 300-1400 AB 1111-3L

supersedes 8.82

company Daimler-Benz

engine OM 314

57 kW (77 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,25-2,35 \\ (2,20-2,40) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,5+0,1	5,9 - 6,0	0,3(0,45)			
300	8,3-8,5	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 24	100	min. 10,0	250	0,7-0,9
ca. 63	9,5	1440-1450					300	8,3-8,5	630	4,8-4,9
	4,0	1535-1565					545-605 = 2,0		1020	5,3-5,4
	1650	0 - 1,0							1400	7,7

Torque control travel a =  mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	59,0-60,0 (57,0-62,0)	1440-1450*	400	44,0-46,0 (42,0-48,0)	100	71,0-81,0	1400	10,5+0,1
							400	11,4+0,1
							600	11,1+0,2
							1000	10,8+0,3
					220 (240)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

**BOSCH**

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B5

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 z

1. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 750-1500 A 2 B 2156 L

supersedes \_

company: Daimler-Benz

engine: OM 352

45 kW (61 PS)

**Testoil-ISO 4113**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,15-2,25</sup>  
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	6,8-6,9	3,5 - 3,6	0,3 (0,45)			
750	4,1-4,3	0,2 - 0,6	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 30	750	4,2	-	-
	x =						765-795	= 2,0		
ca. 56	5,8	1495-1500								
⑤	4,0	1522-1543								
	1575	0,3-1,0								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1450	34,5-35,5 (32,5-37,5)	1495-1500*	-	-	100	58,0-68,0	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

PES 6 P 100 A 820 LS 351

RQ 300/950 PA 483 R

supersedes-

company: Daimler-Benz

OM 407 H

engine: 162 kW (220 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	13,4+0,1	12,5-12,7	0,3(0,6)			
300	8,0-8,2	1,4-2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	13,8-14,6	600	14,2	12,4 4,0 1200	995-1010 1020-1050 0 - 1,0	300	8,1	100 min. 10,1 300 8,0-8,2 370-410 = 2,0		-	-

Torque-control travel  
on flyweight assembly dimension a = mmSpeed regulation: At 995-1010 min<sup>-1</sup>

1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
950	125,0-127,0 (123,0-129,0)	600	-	-	100	135,0-155,0

Checking values in brackets

10.82

Testoil-ISO 4113

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

En

PE 8 P 120 A 320 LS 3807 RQ 750 PA 374 R

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je  $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$ 

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

supersedes -

company: Daimler-Benz

engine: OM 422 A  
196 kW (266 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{4,0 - 4,1}{(3,95 - 4,15)}$  mm (from BDC)  $\gamma 1.8$ 

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,5+0,1	17,8 - 18,0	0,5 (0,9)			
300	5,0-5,2	1,2 - 1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	10,5 4,0	750-755 785-795	-	-	-	-	-	-

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control  
rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	Control rod travel mm	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	Control rod travel mm 7
700	178,0-180,0 (175,0-183,0)	-	-	-	-	100	200,0-210,0

Checking values in brackets

②

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

40

WPP 001/4 MAN 9,2 n1

1. Edition

En

PES 5 A 95 D 410 LS 2543 RQ 250/1050 AB 1042 DL

supersedes-

company: MAN

engine: D 2565 M/MR/MFR  
121 kW (165 PS)1 - 3 - 5 - 4 - 2 je  $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$ 

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,0+0,1	9,2-9,4	0,3(0,6)			
250	6,6+0,2	1,4-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

### B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications Control rod travel mm 5		Control rod travel mm 8		Test specifications Control rod travel mm 10		Control rod travel mm 12	
600		15,6-16,4		600		16,0		9,0 4,0 1250		1095-1110 1140-1170 0 - 1,0	
						250		6,7		100 250 370-410 = 2,0 500 min. 8,2 6,6-6,8 max. 1,0	
										1050 910 800 600	
										10,0-10,1 10,1-10,4 10,5-10,7 10,8-10,9	

Torque-control travel  
on flyweight assembly dimension a = 0,4 mmSpeed regulation: At 1095-1110 min<sup>-1</sup>1 mm less control  
rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7	
1050		-		700		100	
91,5-93,5 (89,5-95,5)				86,5-89,5 (84,5-91,5)		146,5-156,5 16,0-16,8 mm RW	
				500			
				max. 88,5 (max. 90,5)			

Checking values in brackets

10.82

BOSCH

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# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF11,6 t

4. Edition

En

**Testoil-ISO 4113**

PE 6 P 100 A 320 RS 384

RQ 225/1000 PA 571

1 - 5 - 3 - 6 - 2 - 4 je  $60^{+0}_{-0,5}$  ( $+0,75^{\circ}$ )

supersedes 8.81

company: DAF

engine: DKDL 1160  
125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $3,15-3,35$  mm (from BDC)  
 $3,20-3,30$ 

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,4+0,1	9,80 - 10,00	0,3(0,6)			
250	7,5-7,7	0,90 - 1,30	0,3(0,5)			
1000	10,6+0,1	C.Sp. 4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,7 4,0 1250	1045-1060 1100-1130 0 - 1,0	250	7,6	100 250 345-385 = 2,0	min. 8,4 7,5-7,7 = 2,0	1000 600 820 900	10,6-10,8 11,4-11,5 11,2-11,4 10,8-11,1

Torque-control travel  
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
600	98,0 - 100,0 (96,0 - 102,0)	600		1000	93,0 - 95,0 (91,0 - 97,0)	100	170,0 - 210,0 19,5-21,0 mm RW
						250	9,0 - 13,0

Checking values in brackets



# Test Specifications

## Fuel Injection Pumps ②

### and Governors

WPP 001/4 MAN 9,2 a 2

2. Edition

En

PES 5 A 95 D 410 LS 2426

RQ 250/1150 AB 839 L

supersedes 6.82

company MAN

engine D 2555 MX/MXF

141 kW (192 PS)

1 - 3 - 5 - 4 - 2 je  $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$ 

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

1,3-1,4  
(1,25-1,45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,2+0,1	11,5 - 11,7	0,3(0,6)			
250	6,4-6,6	0,9 - 1,5	0,2(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,3	600	16,0	10,3 4,0	1195-1210 1255-1285	250	6,5	100 250 370-410=2,0	min.7,9 6,4-6,6	1150 600 935 1015	11,2-11,3 11,6-11,7 11,4-11,6 11,2-11,5

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1195-1210 min<sup>-1</sup>1 mm less control  
rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1150	114,5-116,5 (112,5-118,5)	250		800	115,0-118,0 (113,0-120,0)	100	146,5-156,5
				500	max. 116,5 (max. 118,5)		

Checking values in brackets

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

WPP 001/4 MAN 9,2 i 1  
2. Edition

En

PES 5 A 95 D 410 LS 2543 y RQ 250/1100 AB 1039 DL

supersedes 3.81  
MAN

company:  
engine: D 2565 M/MF (0)

1 - 3 - 5 - 4 - 2 je  $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

### A. Fuel Injection Pump Settings

Port closing at prestroke (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,0+0,1	9,3-9,5	0,3(0,6)			
250	6,8-7,0	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	9,2	1145-1160	250	6,9	100	min. 8,4	1100	10,2-10,4
				4,0	1180-1210			250	6,8-7,0	700	11,0-11,1
				1300	0- 1,0			410-470	=2,0	500	11,0-11,2

Torque-control travel  
on flyweight assembly dimension a = 0,4 mm

Speed regulation: At 1145-1160 min

1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
700	92,5-94,5 (90,5-96,5)	-		1100	94,5-98,5 (92,5-100,5)	100	146,5-156,5 bei 17,1-17,5 mm Rod
				500	90,5-94,5 (88,5-96,5)		

Checking values in brackets

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

WPP 001/4 MAN 11,1p13  
1. Edition

En

PES 6 A 95 D 410 LS 2542 Z

RQ 250/1100 AB 965 DL

supersedes -

company: MAN

engine: D2566 MUH/MUM

**Testoil-ISO 4113**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke <sup>1,5-1,6</sup>  
(1,45-1,65) mm (from BDC) bei RW= 9,0-12,0

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,7+0,1	12,0-12,2	0,3(0,6)			
250	7,0-7,2	0,9- 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications rev/min 6		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
600		15,6-16,4		600		16,0		11,7		1145-1160	
								4,0		1205-1235	
						250		7,1		100	
								min. 8,6		-	
								250		7,0-7,2	
								380-475		20=2,0	
										max. 1,0	

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1145-1160 min<sup>-1</sup>1 mm less control  
rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes / mm 7	
750		-		1100		100	
119,5-121,5 (117,5-123,5)				128,5-131,5 (126,5-133,5)		121,5-131,5 bei 14,6-15,0 mm RW	
				500			
				117,5-121,5 (115,5-123,5)			

Checking values in brackets

10.82

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1p14  
1. Edition

En

PES 6 A 95 D 410 LS 2542

RQ 250/1100 AB 965 DL

supersedes -

company

MAN

engine

D2566 M/MF  
177 kW (240PS)

**Testoil-ISO 4113**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,5-1,6}{(1,45-1,65)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5-12,7	0,3(0,6)			
250	6,5-6,7	0,8- 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12
600	15,6-16,4	600	16,0	11,0	1145-1160	250	6,0	100	min.7,5	-	-
				4,0	1185-1215			250	5,9-6,1		
				1300	0- 1,0			360-400	=2,0		
								500	max. 1,0		

Torque-control travel  
on flyweight assembly dimension a = 0 mm

Speed regulation  $\frac{1145-1160 \text{ min}^{-1}}{\Delta}$

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7
1100	124,5-126,5 (122,5-128,5)	-		750	110,5-113,5 (108,5-115,5)	100	121,5-131,5 bei 14,4-15,0 mm RW
				500	107,5-113,5 (105,5-115,5)		

Checking values in brackets

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

WPP 001/4 MAN 11,1p15  
1.Edition

En

PES 6 A 95 D 410 LS 2541 RQ 250/1050AB894 DL

supersedes -  
company: MAN  
engine: D2566 MUH  
141kW(192PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

### A. Fuel Injection Pump Settings

Port closing at prestroke <sup>1,5-1,6</sup>  
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,3±0,1	10,1-10,5	0,3(0,6)			
250	5,9-6,1	0,8- 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,3	1095-1110	250	6,0	100	min.7,5	1050	11,2-11,4
				4,0	1145-1175			250	5,9-6,1	600	11,8-11,9
				1210	0- 1,0			360-400	=2,0	800	11,7-11,9
								450	max.1,0	970	11,4-11,6

Torque-control travel on flyweight assembly dimension a = 0,3 mm Speed regulation: At 1095-1110 min<sup>-1</sup> 1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1050	100,5-104,5 (98,5-106,5)	-		700	104,5-108,5 (102,5-110,5)	100	125,0-135,0 bei 14,2-14,8 mm RW
				500	max.103,5 (max.105,5)		

Checking values in brackets

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

WPP 001/4 MB 11,0 c 1  
3. Edition

En

PE 6 P 110 A 320 LS 3805 RQ 300/1150 PA 187-6

supersedes 7.81

company: Daimler-Benz

engine: OM 421

159 kW (216 PS)

1- 6- 3 - 5 - 2 - 4  
0-75-120-195-240-315 °  $\pm 0,50^\circ$  ( $\pm 0,75^\circ$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke  $4,0-4,1$  mm (from BDC)  $9,0-12,0$  mm  
(3,95-4,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,5+0,1	12,8-13,0	0,4(0,8)			
300	7,7-7,9	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,2-14,0	650	13,6	11,5 4,0	1195-1210 1240-1270	300	7,1	100 300 400	min. 8,5 7,0-7,2 440-440=2,0	-	-

Torque-control travel

on flyweight assembly dimension a =  mm

Speed regulation: At 1195-1210 min<sup>-1</sup> 1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	Control rod travel mm 3a	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes / mm 7
1150	128,0-130,0 (125,0-133,0)	-		600	120,0-124,0 (117,0-127,0)	100	130,0-150,0

Checking values in brackets

11.82

Testoil-ISO 4113

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

PES 4 A 95 D 410 RS 2424

RQ 275/1200 AB 865 DL

supersedes -

company: TAM

engine: F4L413R

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke  $1,75-1,85$   
(1,70-1,90) mm (from BDC) RW 10,5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	9,0-9,1	7,6-7,8	0,3 (0,6)			
275	5,9-6,1	0,7-1,3	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 4		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 8		Torque control rev/min 11		Control rod travel mm 12	
600	15,6-16,4	600	16,0	8,0 4,0 1450	1245-1260 1300-1330 0 - 1,0	275	6,0	100 275 370-410 = 2,0 500	min. 7,5 5,9 - 6,1 max. 1,0	1200 950 700	9,0-9,1 9,2-9,5 9,6-9,7		

Torque-control travel  
on flyweight assembly dimension a = 0,35 mmSpeed regulation: At 1245-1260 min<sup>-1</sup>

1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
1200	75,5-77,5 (73,5-79,5)	700		1000 700	74,5-77,5 (72,5-79,5) 75,5-79,5 (73,5-81,5)	100		115,0-125,0 = 13,7-14,3	

Checking values in brackets

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 m

3. Edition

En

**Testoil-ISO 4113**

PE 6 P 100 A 320 RS 384

RQ 225/1100 PA 450/2 DR

supersedes 10.80

DAF

company: DKL 1160

engine:

1 - 5 - 3 - 6 - 2 - 4  $\pm 0,50^{\circ}$   
 0 -60 -120-180-240-300  $(\pm 0,75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

3,20-3,30  
(3,15-3,35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	11,9-12,0	11,4 - 11,6	0,3(0,6)			
225	7,3-7,5	0,9 - 1,3	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,6-16,4	550	16,0	10,1	1145-1060	225	6,0	100	min.7,6	1050	11,1-11,2
										600	11,9-12,0
1300	0,3- 1,0			4,0	1175-1205			225	7,3-7,5	825	11,7-11,9
								325-365	=2,0	915	11,1-11,4

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min		rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3		4	5	6	7
600	114,0 - 116,0 (112,0 - 118,0)	-		1050	105,0 - 108,0 (103,0 - 110,0)	100	195,0 - 235,0 19,5-21,0 mm RW
						225	9,0 - 13,0

Checking values in brackets

11.82

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B18

B 18



# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 9

1. Edition

En

PE 6 P 110 A 320 RS 310 8 y RQV 250-1100 PA 649.

supersedes

company Volvo

engine THD 100 EC

180 kW (245 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  
3,0-3,1  
(2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,1+0,1	13,7-13,9	0,4 (0,8)			2,4-2,6
250	5,0-5,2	3,2-3,6	0,3 (0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca. 12	100 250	min. 6,7 5,0-5,2	200 500 660 bis 1055 1100	0,6-0,8 4,2-4,8 6,4-6,5 7,3
ca. 59	10,1 4,0 1350	1140-1150 1205-1235 0 - 1,0					345-405 = 2,0			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a		Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel Control rod travel mm ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9	
LDA 700	0.75 bar 137.0-139.0 134.0-142.0	1140-1150*	LDA 700	0 bar 105.0-107.0 (102.0-110.0)	180	170.0-200.0 = 20.0 - 21.0 mm RW	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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## D. Adjustment Test for Manifold Pressure Compensator

Test at  $n = 500$  rev/min decreasing pressure – in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS3108y + RQV..PA649	0,30		10,5 - 10,6
		0,75	11,1 - 11,2
		0	9,6 - 9,8
		0,22	10,0 - 10,2

### Notes

(1) when  $n =$  rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 STE 12,0 b

1. Edition

En

PE 8 P 110 A 121 LS 3113 RQ 300-1100 PA 646

1-5-4-8-6-3-7-2 je  $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$ 

supersedes -

company STEYR  
WD815.64

engine 240 kW (326 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	15,8-16,0	0,4(0,8)			
300	6,1-6,3	1,5-2,1	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,0 4,0 1400	1135-1150 1200-1230 0 - 1,0	300	6,2	100 300 400	min.7,7 6,1-6,3 460=2,0	-	-

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1135-1150 min

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 1100	0,9 bar 158,0-160,0 (155,0-163,0)	-	LDA 500	0 bar 111,0-113,0 (108,0-116,0)	100	240,0-280,0

Checking values in brackets

B21

11.82

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE8P..LS3113 +..PA646	0,55	0,90 0 0,48	11,5-11,7 12,0-12,1 9,7- 9,8 10,9-11,1

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 8,3 1 2

1. Edition

En

PE 6 P 100 A 720 RS 373-1 RQ 250/1200 PA 464 R

supersedes

company: DAF

engine: DHU 825

169 kW (230 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

2,5-2,6

(2,45-2,65)

mm (from BDG) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,3±0,1	12,8-13,0	0,3 (0,6)			
250	7,2-7,4	0,8-1,2	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
700	15,6-16,4	700	16,0	11,3 4,0 1450	1245-1260 1320-1350 0-1,0	250	7,3	100 250 470-510=2,0	min. 8,4 7,2-7,4	1000 700	12,3-12,4 12,3-12,5

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At 1245-1260 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm <sup>3</sup> /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm <sup>3</sup> /1000 strokes / mm 7	
LDA 1000	0,7 bar 127,5-129,5 (125,5-131,5)	-	-	LDA 500	0 bar 89,5-92,5 (87,5-94,5)	100	195,0-215,0 =19,5-21,0 mm RW

Checking values in brackets

B23

11.82

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## D. Adjustment Test for Manifold Pressure Compensator

Test at  $n = 600$  rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 373-1 + RQ ..PA 464 R	0,34	0,70 0 0,30	12,0-12,1 12,3-12,4 11,2-11,3 11,5-11,7

### Notes

(1) when  $n =$

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

①

# Test Specifications

## Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 01

1. Edition

En

PE 6 P 110 A 320 RS 3080

RQV 250-1025 PA 589

supersedes

company: Volvo

engine: TD 100 GA

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,5-3,6</sup> (3,45-3,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	2,0+0,1	16,2-16,4	0,4 (0,8)			
250	9,7-9,9	1,6- 2,0	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1080	15,2-17,8	-	-	-	ca. 8	100	min 5,6	200	0,7-0,9
ca. 63	11,0 4,0	1065-1075 1120-1150					250	4,0-4,2	475	3,9-4,5
	1250	0 - 1,0					305-365 = 2,0		660	6,4-6,6
									745	7,5
									1025	

Torque control travel a =  mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min ④ 5 cm³/1000 strokes		Starting fuel delivery idle switching point ⑥ rev/min 6 7 cm³/1000 strokes		Torque-control travel ⑤ rev/min 8 Control rod travel mm 9	
1	2	3	4	5	6	7	8	9
LDA 700	0,7 bar 162,0-164,0 (159,0-167,0)	1065-1075*	LDA 700	0 bar 120,0-124,0 (117,0-127,0)	100	170,0-200,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.82

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C1

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS 3080 + RQV..PA589	0,44	0,75 0 0,25	11,4-11,6 12,0-12,1 9,7- 9,9 10,2-10,3

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



①

# Test Specifications

## Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 K

2. Edition

En

**Testoil-ISO 4113**

PE 6 P 110 A 320 RS 389 RQV 250-1100 PA 459 R

superseded 10.79

company Volvo

engine TD 100C

(189,0kW-257PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{3,00-3,10}{(2,95-3,15)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,4-12,5	13,10 - 13,30	0,4(0,8)			
250	4,7-4,8	1,10 - 1,50	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1170	15,2-17,8				ca. 9	100 250	min.6,5 4,7-4,9	200 500 800 1100	0,5-0,7 2,7-3,1 4,9-5,2 7,7
ca.45	11,4 4,0 1350	1140-1150 1230-1260 0,3-1,0				③a	300-360 = 2,0			

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min ④ cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery idle switching point ⑥ rev/min ⑥ cm <sup>3</sup> /1000 strokes 7		Torque-control ⑤ travel rev/min ⑧ Control rod travel mm 9	
1	2	3	4	5	6	7	8	9
LDA 700	0,5 bar 131,0-133,0 (128,0-136,0)	1140-1150*	700	108,0 - 112,0 (105,0 - 115,0)	100 100-170(80-190)	180,0-220,0		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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C3

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
389 + 459R	0,36	0,50 0 0,23	12,2 - 12,3 12,4 - 12,5 11,2 - 11,3 11,5 - 11,7

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VAU 5,4 a

1. Edition

En

PES 6 A 95 D 320 RS 2646 RQV 300-1300 AB 1163 R

supersedes

company Vauxhall

engine 330 T/C

Please note instructions on sheet 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,5 - 2,6$   
(2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	9,7-9,8	6,4 - 6,6	0,3(0,6)			
300	5,9-6,1	0,8 - 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1425	15,2-17,8	-	-	-	ca. 12	100	min. 7,4	250	0,4-0,7
ca.63	8,7 4,0 1550	1340-1350 1440-1470 0 - 1,0					300 305-400	5,9-6,1	600 950 1300	4,1-4,4 5,6-5,7 7,7

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
800	63,5-65,5 (61,5-67,5)	1340-1350*	1200 500	71,5-74,5 (69,5-76,5) 52,0-55,0 (50,0-57,0)	100	86,5 - 96,5 - 19,5-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

### Instructions on fitting and testing

1. Clamp the pump onto the test bench without the governor fitted.
2. Set the plunger lift to port closing.
3. Turn the camshaft until cylinder 1 is at port closing.
4. Fit the flyweight assembly onto the camshaft so that the fastening bolt of the flyweight assembly with the marking on the front points towards the index plate in the hole in the governor housing. Fit the governor ready.
5. In this position, a mark, coinciding with that on the front of the fastening bolt for the governor flyweight assembly, is drawn on the index plate.

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 7,0 b 1

1. Edition

En

PE 6 P 110 A 320 RS 260X RSV 250-1250 P0/374/2R

supersedes -

company Volvo-Penta  
engine TAMD 70 D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,8-2,9}{(2,75-2,95)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	10,5+0,1	12,0-12,2	0,4(0,8)			
250	5,9-6,1	1,1- 1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 X = 5,75	-	-	-	ca. 19	250	5,5	-	-
ca. 49	9,5	1290-1300					100	min. 20,0		
2a	4,0	1340-1370					250	5,9-6,1		
	1450	0,3-1,7					455-515	= 2,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3		4	5	6	7	8	9
LDA	1,1 bar	1290-1300*	LDA	0 bar		100	160,0-200,0	-	-
1000	120,0-122,0 (117,0-127,0)		700	85,0-88,0 (82,0-91,0)			=20,0-21,0 mm RW		

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

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Testoil-ISO 4113

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure =      bar	Gauge pressure =      bar	mm      (1)
PE6P.. RS 260 X +..P0/374/2R	0,90	1,10 0 0,55	10,4 - 10,5 10,5 - 10,6 8,7 - 8,8 8,8 - 9,1

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 10,1 a

1. Edition

En

PES 6 P 110 A 720 RS 370 US-RSV 400-1050 P0/495

supersedes -  
company John Deere  
engine 6619 A  
205 kW (279 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

2,75-2,85  
Port closing at prestroke (2,70-2,90) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,5+0,1	17,8-18,0	0,4 (0,8)			
400	6,0-6,1	1,3-1,9	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.16	400	5,5	1050	12,5-12,6
	X =						100	min.19,0	700	13,7-14,0
							400	5,9-6,1	500	9,3-9,5
ca.38,5	11,5	1090-1100					570-630	= 2,0		
2a	4,0	1155-1185					650	max. 1,0		
	1280	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to ) rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	cm <sup>3</sup> /1000 strokes 5	6	rev/min 7	cm <sup>3</sup> /1000 strokes 8	rev/min 9	Control rod travel mm 10
LDA	1,2 bar	1090-1100*	LDA	1,2 bar	100	min.170,0	400	6,0	
1050	178,0-180,0		700	202,0-208,0	400	13,0-19,0			
	(175,0-183,0)			(199,0-211,0)					
			LDA	0 bar					
			500	96,0-102,0					
				(93,0-105,0)					

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..RS370 + US-RSV..PO/495	0,64	0,28	12,8-12,9 10,5-10,6

### Notes

(1) when n = rev/min and gauge pressure - bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 8,3 k  
6. Edition

En

**Testoil-ISO 4113**

PE 6 A 95 D 410 RS 2525, Y, X RQ 225/1200 AB 1007 L

supersedes 82

company DAF

engine DN 825 (Y.X)

DHR 825

Test the manifold-pressure compensator and cold-start according to Service Information. Specifications apply to test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>(1,95-2,15)</sup> 2,00-2,10 RW9 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,6+0,1	10,8 - 11,0	0,3(0,6)			
225	5,7-5,9	0,7 - 0,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

Port closing difference between control-rod travel 9 and max. = 3,0-4,0°.

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications rev/min 6		Control rod travel mm 8		Test specifications rev/min 10		Control rod travel mm 12	
650	19,2-20,8	650	20,0	11,6	1230-1245	225	5,8	100	min. 7,2	-	-
VH = max. 46°				4,0 1450	1315-1345 0 - 1,0			225 340-380 = 2,0 450	5,7-5,9 max. 1,0		

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation At 1230-1245 min<sup>-1</sup>

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes / mm 7	
LDA 1000	0,7 bar 106,5 - 108,5 (104,5 - 110,5)			LDA 600	0 bar 77,5 - 80,5 (75,5 - 82,5)	100	121,5-131,5 = 19,5-21,0 mmRW
X 1000	90,5 - 92,5	(12 mm RW		X 600	77,0 - 80,0		
Y 1000	99,0 - 101,0	(12,5 mm RW)		Y 600	77,0 - 80,0		

Checking values in brackets

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PE 6 A ..RS 2525 + ..AB 1007 L	0,7		12,6 - 12,7	
		0,30	12,2 - 12,3	
		0,25	11,5 - 11,7	
		0	11,2 - 11,3	

Notes

(1) when n =

rev/min and  
gauge pressure

bar (maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 k 1

3. Edition

En

**Testoil-ISO 4113**
PE 6 A 95 D 410 RS 2525, X, Y RSV 250-1200 A 5 B 2013 DL <sup>supersedes</sup> 10.81

company DAF

engine DN825 (X, Y)

DHP/DHTD 825

Test the manifold-preeure compensator and cold-start according to Service Information. Specifications apply to test tubing 1 680 750 015.  
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)  
2,00-2,10 RW 9 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,6+0,1	10,7 - 10,9	0,3(0,6)			
250	6,0-6,2	0,8 - 1,0	0,3(0,5)			
600	11,6+0,1	C, Sp. 4 u.5				

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Port closing difference between control-rod travel 9 and max. = 3,0-4,0°.

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
100se	800 X	0,3-1,0 4,25	-	-	-	ca. 21	250	5,6	1000	12,6+0,1
									400	12,6+0,2
							250	6,0-6,2	300	12,8+0,4
⑤ ca. 55	1230-1240	11,6					595-655	2,0		
	1330-1360	4,0								
	1490	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to ...							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 106,5-108,5 (104,5-110,5)	1230-1240*		LDA 600	0 bar 82,5 - 85,5 (80,5 - 87,5)	100	19,0-21,0 mm RW	250	6,1
X 1000	90,5- 92,5	(12,0mmRW)		X 600	77,0 - 80,0				
Y 1000	99,0-101,0	(12,5mmRW)		Y 600	77,0 - 80,0				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n =                      rev/min    decreasing    pressure - in bar gauge pressure  
    increasing

Pump/governor	Setting	Measurement	Control rod travel:    diminution difference
	Gauge pressure =                      bar	Gauge pressure =                      bar	mm                      (1)
2525 + 2013 DL	0,7		12,6 - 12,7
		0,27	12,2 - 12,3
		0,23	11,5 - 11,8
		0	11,2 - 11,3

Notes

(1) when n =                      rev/min and                      bar (= maximum full-load control rod travel)  
    gauge pressure

①

# Test Specifications

## Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 m  
5. Edition

En

**Testoil-ISO 4113**

PE 6 P 110 A 320 RS 273 RQV 250-110 OPA 530

1 - 5 - 3 - 6 - 2 - 4 je  $60^0 \pm 0,5^0$  ( $\pm 0,75^0$ )

superseded 81

company: Volvo

engine: TD 100B

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

(2,55-2,75)

Port closing at prestroke 2,60-2,70 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,0	14,8 - 15,0	0,4(0,8)			2,5 $\pm$ 0,1 **
250	+0,1 5,1-5,3	0,8 - 1,2	0,3(0,7)			(max. 2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8				ca. 10	100	min. 6,7	250	1,1
ca. 40	9,0	1140-1150					250	5,1-5,3	450	2,5-2,8
	4,0	1225-1255					305-365=2,0		1150	7,2
	1350	0 - 1,0				3a				

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel Control rod travel mm ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
LDA 700	0,8 bar 148,0-150,0 (145,0-153,0)	1140-1150*	LDA 700	0 bar 112,5-115,5 (109,5-118,5)	100	160 - 180		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing  
 XXXX

Pump/governor	Setting	Measurement	Control rod travel (1) mm
273 + 530	0,8 bar	0,4 bar 0,25 bar 0	10,0 - 10,1 9,5 - 9,7 8,8 - 8,9 8,4 - 8,5

### Notes

(1) when n = rev/min and gauge pressure - bar (= maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 13,8 m

4. Edition

En

**Testoil-ISO 4113**

PE 8 P 120 A 920/5 LS 3804

RQV 300-950 PA 475 R

supercedes 81

company Fiat

engine 8285.22

1 - 8 - 4 - 3 - 6 - 5 - 7 - 2

0 -45 -90 -135-180-225-270-315  $\pm 0,5^{\circ}(\pm 0,75^{\circ})$ 

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (3,45-3,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	11,1+0,1	20,7 - 21,1	0,5(0,9)			
300	4,9-5,1	1,5 - 2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	950	15,2-17,8	-	-	-	ca. 11	100	min. 7,5	300	2,0-2,1
ca. 64	10,1 4,0 1250	990-1000 1075-1105 0 - 1,0					300	5,9-6,1	400	3,1-3,5
							300-390=2,0		1000	8,3

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed (2b) limitation intermediate speed (4a)	Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery (6) idle switching point	Torque-control (5) travel Control rod travel mm		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
LDA 950	0,7 bar 207,0-211,0 (204,0-214,0)	990-1000*	LDA 950	0 bar 142,0-146,0 (139,0-149,0)	100	19,5-21 mmRW Electromagnet 24V		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 increasing  
 XXXXXX

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
.. LS 3804 + RQV..PA 475 R	0,7	0,35 0,28 0	11,1 - 11,2 10,4 - 10,5 9,0 - 9,3 8,3 - 8,4

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 6,1 f

2. Edition

En

**Testoil-ISO 4113**

PES 6 A 85 D 410 RS2572

RQ 300/1325 AB1070DL

..410/3..

RQV 300-1325 AB1072DL

supersedes 4.79  
K H D

company: BF 6 L 913

engine: 118 kW (160 PS)  
2650 min<sup>-1</sup>

Please note instructions on sheet 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke <sup>2,20-2,30</sup>  
 (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	13,1	8,8 - 8,9	0,3(0,45)			
	+0,1					
300	4,9-5,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6		Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10		Control rod travel mm 12	
855	19,2-20,8	855	20,0	12,1	1370-1385	300	6,0	100	min. 7,5	-	-
1350	Breakaway	VH ca.49	4,0	1450-1480				300	5,9-6,1		
1550								505	545=2,0		
	0 - 1							625	0 - 1		

Torque-control travel  
on flyweight assembly dimension a = 0 mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7	Control rod travel
LDA 1325	0,7 bar 87,5 - 88,5 (85,5 - 90,5)			LDA 850	0,7 bar 81,5 - 84,5 (79,5 - 86,5)	100	19-21 mm RW <sub>1</sub>
				LDA 500	0 bar 52,0 - 54,0 (50,0 - 56,0)		*Electromagnet 24V
							./.

Checking values in brackets

**B. Governor Settings**

RQV..1072DL

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1325	15,2-17,8	-	-	-	ca.13	100 300 375-435 530	min.7,5 5,9-6,1 =2,0 0 - 1	300 900 1370	1,4-1,6 4,2-4,4 8,4
ca.47	12,1 4,0 1600	1365-1375 1455-1485 0 - 1,0				(3a)				

Torque control travel a = 0 mm

**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1325	0,7 bar 87,5 - 88,5 (85,5 - 90,5)	1365-1375*	LDA 850	0,7 bar 81,5 - 84,5 (79,5 - 86,5)	100	19-21 mm RW Electromagnet 24V		
			LDA 500	0 bar 52,0 - 54,0 (50,0 - 56,0)				

Checking values in brackets

\* 1 mm less control rod travel than col: 2

**Testoil-ISO 4113****D. Adjustment Test for Manifold Pressure Compensator**Test at n = rev/min ~~decrease~~ ~~XXXXXX~~ pressure - in bar gauge pressure ~~increasing~~

Pump/governor	Setting	Measurement	Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm
2572 + 1070D	0	- - - 0,22 0,32 0,70	9,7 - 9,8 10,5 - 10,8 12,2 - 12,3 13,1 - 13,2
2572 + 1072D	0	- - - 0,22 0,32 0,70	9,7 - 9,8 10,5 - 10,8 12,2 - 12,3 13,1 - 13,2

En

\*\*

Set full-load delivery at control lever and manifold-pressure compensator (LDA). Then turn LDA adjusting sleeve (for delivery amount) 1/2 turn in the direction more control-rod travel.

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6k3

1. Edition

En

PE 6 P 110 A 320 RS 372-1 RSV 250-1100 P5/458 R  
P5/458-1

supersedes -  
company DAF  
DKTD 1160  
engine 191 kW (260 PS)

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,8-2,9$   
 $(2,75-2,95)$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	13,6 - 13,8	0,4 (0,8)			
250	6,6-6,8	0,7 - 1,1	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever mm 1			Intermediate rated speed mm 4 5 6			4 Lower rated speed Control lever deflection in degrees rev/min mm 7 8 9			3 Torque control rev/min mm 10 11	
loose	800	0,3-1,0	-	-	-	ca. 21	250	6,2	400	12,2+0,1
	x = 4,25						250	6,6-6,8	300	12,4+0,5
ca. 51	11,0	1140-1150					640-700	= 2,0		
2a	4,0	1275-1305								
	1425	0,3 - 1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to ) rev/min 3		3a Fuel delivery characteristics rev/min cm <sup>3</sup> /1000 strokes 4 5		Starting fuel delivery 5 Idle rev/min cm <sup>3</sup> /1000 strokes 6 7		4a Idle stop rev/min Control rod travel mm 8 9	
LDA 850	0,7 bar 136,0-138,0 (133,0-141,0)	1140-1150*		LDA 600	0 bar 126,0-129,0 (123,0-132,0)	100	245,0-285,0 = 19,5-21,0 mm RW	250	6,6-6,8

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

**BOSCH**

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Testoil-ISO 4113

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 372-1 + .. P5/458 u. ..P5/458-1	0,30	0,70 0 0,26	11,8-11,9 12,0-12,1 11,4-11,5 11,5-11,7

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 k 4

1. Edition

En

PE 6 P 120 A 320 RS 372-1 RSV 250-1100 P5/458 R

supersedes  
company DAF  
engine DKS 1160

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,8-2,9</sup>  
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10,9+0,1	19,1-19,5	0,5 (0,9)			
250	6,2-6,4	1,1-1,5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,8	400	11,1+0,1
	X = 5,0						250	6,2-6,4	300	11,3+0,5
ca. 54	9,9	1140-1150					620-680	= 2,0		
2a	4,0	1260-1290								
	425	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 850	0,7 bar 191,0-195,0 (188,0-198,0)	1140-1150*	LDA 600	0 bar 133,0-137,0 (130,0-140,0)	100	315,0-355,0 = 19,5-21,0 mm RW	250	6,2-6,4	

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS372-1 + ..P5/458R	0,36		10,6 - 10,7
		0,70	10,9 - 11,0
		0	9,8 - 9,9
		0,28	10,0 - 10,2

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 q 2

9. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 350-1300 AOB 783 L

superseded 8.82

company: Daimler-Benz

engine: OM 352 A  
110 kW (150 PS)

Dimensions H = 22,5 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,0+0,1	7,0 - 7,1	0,3(0,45)			
350	6,9-7,1	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 25	350	7,0	1300	11,0+0,1
	X =	3,5					100	min. 19,0	500	11,6+0,1
							350	7,4-7,6	800	11,4+0,2
ca. 65	10,0	1340-1350					570-630	= 2,0		
⑤	4,0	1435-1465								
	1550	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)								
rev/min 1	cm <sup>3</sup> /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1300	0,7 bar 70,0-71,0 (68,0-73,0)	1340-1350*	LDA 500	0,7 bar 60,0-63,0 (58,0-65,0)	100	14,5-14,9 mm RW	-	-
800	65,5-68,5 (63,5-70,5)		LDA 500	0 bar 54,0-56,0 (52,0-58,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES6A.. RS 2293 .. AOB 783 L	0,38	0,7 0 0,33	11,4 - 11,5 11,6 - 11,7 11,0 - 11,1 11,1 - 11,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

## Testoil-ISO 4113

Testing the hydraulic start-locking device

Locking at 0,4 - 0,5 bar

Unlocking at 0,2 - 0,3 bar



# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 8,3 L

7. Edition

En

**Testoil-ISO 4113**

 PE 6 P 100 A 720 RS 373 RQ 250/1200 PA 464 R  
 EP/RSV 250-1200 PO/447R

 supersedes 11.81  
 company D A F  
 engine DHU 825

(169kW-230PS)

See service Information VDT-I-DAF 004

Start-of-delivery test without, Start-of-delivery test with Robo diaphragm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,50-2,60) mm (from BDC) Zyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery m. 464 R cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,3-12,4	12,8 - 13,0	0,3(0,6)	12,3-12,4	12,8 - 13,0	
250	7,2-7,4	0,8 - 1,2	0,3(0,5)	7,2-7,4	0,8 - 1,2	

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

RQ.. 464 R

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
Control rod travel rev/min	mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	15,6-16,4	700	16,0	11,3 4,0 1450	1245-1260 1320-1350 0 - 1,0	250	7,3	100 250 470-510 = 2,0	min. 8,4 7,2-7,4	1000 700	12,3-12,4 12,3-12,5

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3	4	5	6	7	Control rod travel
LDA	0,7 bar		LDA	0 bar	100	195,0-215,0	
1000	127,5 - 129,5 (125,5 - 131,5)		500	89,5 - 92,5 (87,5 - 94,5)			

Checking values in brackets

./.

**B. Governor Settings**

RSV....447 R

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0				ca. 23	250	6,8	400	12,5-12,6
	X = 4,5						250	7,2-7,4	300	12,7-13,2
ca. 50	11,3	1240-1250					560-620 = 2,0			
②a	4,0	1350-1380								
	1500	0,3 - 1,7								

The numbers denote the sequence of the tests

**C. Settings for Fuel Injection Pump with Fitted Governor**

②b Full-load stop		⑥ Rotational-speed limitat		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to ...)				Idle			
rev/min	cm <sup>3</sup> /1000 strokes	rev/min		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
LDA	0,7 bar			LDA	0 bar	100	195,0-215,0		
1000	127,5 - 129,5 (125,5 - 131,5)	12040-1250	500		89,5 - 92,5 (87,5 - 94,5)		= 19,5 - 21,0 mm RW		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

**Testoil-ISO 4113****D. Adjustment Test for Manifold Pressure Compensator**Test at n = rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
373 + 464 R n = 600	0,7	0 0,34 0,30	12,3-12,4 11,2-11,3 12,0-12,1 11,5-11,7
373 + 447 R n = 600	0,7	0,15 0,22 0	12,3-12,4 11,5-11,7 12,0-12,1 11,2-11,3

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

En

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

WPP 001/4 DAF 11,6K1  
3. Edition

En

**Testoil-ISO 4113**

PE6P120A320RS372

RQ250/1100PA 417 R

1 - 5 - 3 - 6 - 2 - 4  $\pm 0,50^p$   
0 - 60 - 120 - 180 - 240 - 300 ( 0,75)

supersedes 10.80

company: DAF

engine: DKS 1160

See service Information VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke  $2,80-2,90$   
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10,9-11,0	19,1 - 19,5	0,4(0,8)			
250	6,2-6,4	1,1 - 1,5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	9,9 4,0 1350	1145-1160 1210-1240 0 - 1,0	250	6,3	100 250 445 - 485 = 2,0	min. 7,4 6,2-6,4	850 1100	10,9-11,0 10,8-11,0

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: 1145-1160 min<sup>-1</sup>

1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA	0,7 bar		600	133,0 - 137,0 (130,0 - 140,0)	100	315,0 - 355,0 = 19,5-21,0 mm RW
850	191,0 - 195,0 (188,0 - 198,0)				250	6,3 mm RW

Checking values in brackets

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
372 + 417R	0,7	0 0,30 0,26	10,9- 11,0 9,8- 9,9 10,6- 10,7 10,0- 10,2

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 13,8a1

3. Edition

En

**Testoil-ISO 4113**

PE 6 P 120A720 RS 167 RQV 225-1100 PA 177 R  
337 R  
478 R

supersedes 1.80  
Fiat  
company: 8210.02.422  
engine: 221A

Testing with T nozzles and fuel lines 8 x 2 x 1000  
according to ..W 400/305

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,00-2,10}{(1,95-2,15)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,1-11,2	19,3 - 19,7	0,5(0,9)	11,4-11,5	20,1 - 20,5	n=1100
225	7,5-7,6	1,7 - 2,3	0,8(1,2)	7,5-7,7	1,7 - 2,3	n=225

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

RQV...177R

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 68	1100 1350	15,2-17,8 0 - 1,0	-	-	-	ca. 10	100 225	mind. 7,5 5,9-6,1	300 1100	1,2-2,0 8,2
ca. 60	10,1 4,0	1140-1150 1200-1230					460-520=2,0			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery Idle switching point (6)	Torque-control (5) travel Control rod travel mm		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	193,0 - 197,0 (190,0 - 200,0)	1140-1150*			100	min. 16,0 mm RW		

Checking values in brackets

\* 1 mm less control rod travel than col. 2  
8.82

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D7

## B. Governor Settings

FIAT 13,8a1  
RQV...337R

- 2 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max. ca. 59	1100 10,4 4,0 1350	15,2-17,8 1140-1150 1205-1235 0 - 1,0				ca.11  295-410 (3a)	100 225	min. 9,1 7,5-7,7	200 500 800 1100	0,6-0,8 2,6-3,0 4,7-5,0 8,0

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	9
1100	201,0-205,0 (198,0-208,0)	1140-1150*			100	19,5-21,0 Electromagnet 24V	

Checking values in brackets

**Testoil-ISO 4113**

\* 1 mm less control rod travel than col 2

## B. Governor Settings

RQV...478R\*

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.68	1100 1350	15,2-17,8 0 - 1,0				ca.11	100 225	mind.8,5 7,5-7,7	225 410	0,8 2,4-2,6
ca.62	10,4 4,0	1140-1150 1205-1235				(3a)	590-660 =2,0		1150	8,6

Torque control travel a = mm

Control switch must light up at n = 1215-1225

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	9
1100	202,0-205,0 (199,0-208,0)	1140-1150*			100	19,5-21,0 Electromagnet 24V Control switch n=1215-1225	

Checking values in brackets

\* 1 mm less control rod travel than col 2

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 RVI 12,0 d  
1. Edition

En

PE 6 P 110 A 320 RS 335 RSV 300-1100 P1/815 DR

supersedes  
company RVI  
engine MDS 635-40  
169 kW (230 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $1,3-1,4$   
(1,25-1,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,1+0,1	13,9-14,1	0,4(0,8)			
300	6,4-6,6	0,9- 1,7	0,4(0,8)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.27	300	6,0	1100	11,1+0,1
	$\chi = 4,75$						300	6,4-6,6	900	12,2+0,1
							500-560	=2,0	650	12,7+0,1
ca.63	10,1	1140-1150								
2a	4,0	1185-1215								
	1300	0,3- 1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min				Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	5	6	7	8	9	
LDA 1100	0,7 bar 139,0-141,0 (136,0-144,0)	1140-1150*	LDA 900	0,7 bar 159,5-163,5 (156,5-166,5)	100	190,0-210,0 bei 19,5-21,0 mm RW	-	-	
LDA 650	0,7 bar 165,0-170,0 (162,0-173,0)		LDA	0,3 bar 152,5-162,5 (149,5-165,5)	LDA 350	0 bar 109,0-113,0			

Checking values in brackets

\* 1 mm less control rod travel than col 2

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS335 + ..P1/815DR	0,30	0,70 0 0,18	12,1-12,2 12,7-12,8 10,6-10,7 11,0-11,4

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x

6. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1140 L

RQV 300-1400 AB 1141 L

RQV 300-1400 AB 1142 L

supersedes 8.82

company Daimler-Benz

engine OM 352 A

124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5 - 7,6	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

.. AB 1140 L, .. AB 1141 L, .. AB 1142 L

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	16,0-19,4	-	-	-	ca. 15	100 300	min. 9,2 7,6-7,8	250 600 950 1400	0,9-1,1 3,1-3,4 5,3-5,5 8,2
ca. 61	10,3 4,0 1650	1435-1445 1550-1580 0 - 1,0				350-475 ③a				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min ④ cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery idle switching point ⑥ rev/min 6 cm <sup>3</sup> /1000 strokes 7		Torque-control travel ⑤ rev/min 8 Control rod travel mm 9	
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445 *	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1375 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2293 ..AB1140L + ..AB1141L ..AB1142L	0,7		11,3 - 11,4
		0	11,0 - 11,1
		0,28	11,1 - 11,2

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

# Test Specifications

## Fuel Injection Pumps ①

### and Governors

WPP 001/4 MB 5,7 n 5

3. Edition

En

**Testoil-ISO 4113**

PES 6 A 90 D 410 RS 2520 RQV 300 - 1425 AB 982 DL

supersedes 79

company Daimler Benz

engine OM 352 A

127 kW (172 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{1,80-1,90}{(1,75-1,95)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,5+0,1	7,9 - 8,0	0,3(0,45)			
300	7,5-7,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1425	16,0-19,4	-	-	-	ca. 10	100	min. 7,4	400	1,4-2,2
	10,5	1440-1450					300	5,8-6,0	1425	8,1
	4,0	1560-1590					570-630	= 2,0		
	1700	0 - 1,0					800	0 - 1		
						350-500 ③a				

Torque control travel a = 0,5 mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min ④		Starting fuel delivery idle switching point ⑥ rev/min ⑥		Torque-control travel ⑤ 0,1 Control rod travel mm rev/min ⑧	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	mm 9
LDA 1400	0,7 bar 79,0 - 80,0 (77,0 - 82,0)	1440-1450*	LDA 600	0,7 bar 76,0 - 78,0 (74,0 - 80,0)	100	14,0-14,6 mm RW	1400	11,5
800	82,0 - 84,0 (80,0 - 86,0)		LDA 500	0 bar 62,0 - 65,0 (60,0 - 67,0)			1200	11,8
							1000	12,1
							600	12,6
								./.

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 800 rev/min decreasing pressure - in bar gauge pressure  
 increasing  
 XXXXXXXX

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod mm diminution difference XXXXXXX (1) XXX
2520 + 982 DL	0,14	0,65 0,17 0	12,5 - 12,6 12,2 - 12,3 11,7 - 11,9 11,5 - 11,6

## Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MAN 11,1 q 1

2. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 720 LS375 RQV 250-1100 PA373DR (1)  
250-1100 PA334 R (2)

superseded by 78  
company M A N  
engine D2566 MTF/MTE  
(1-2:206kW - 280PS)

6 - 2 - 4 - 1 - 5 - 3  $\pm 0,50$   
0 - 60-120-180-240-300<sup>0</sup> ( $\pm 0,75$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,00-3,10}{(2,95-3,15)}$  mm (from BDC) Zyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,1	14,70-14,90	0,4(0,8)			
250	+0,1 6,9-7,1	1,00- 1,60	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca.16	100 250 520 600	min.8,5 6,8-7,0 580=2,0 0 - 1	250 500 800 1150	0,9-1,1 3,8-4,0 5,4-5,5 8,3
ca.68	11,1 4,0 1400	1140-1150 1280-1310 0 - 1,0								

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	+0,1
(1) 1100	LDA 0,7 bar 147,0-149,0 (144,0-152,0)	1140-1150*	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225-245	1100	12,1
700	157,0-161,0 (154,0-164,0)		LDA 500	0 bar 111,0-113,0 (108,0-116,0)	250	7 mm RW	850	12,4
					100-170 (80-190)		700	12,8

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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D15

## B. Governor Settings

MAN11,1q1 - 2 -  
(2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1100 1350	15,2-17,8 0 - 1	-	-	-	ca. 11	100	min. 8,5 250 6,8-7,0 350-410=2,0 500 0 - 1	250 800 1100	0,6-1,2 4,9-5,3 8,6
ca. 47	11,1 4,0	1140-1150 1200-1230				(3a)				

Torque control travel a = - mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(2) 1100	147,0-149,0 (144,0-152,0)	1140-1150 *				100	225-245		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

**Testoil-ISO 4113**

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm
375 + 373DR	0,68	0,32 0,20 0	12,8-12,9 12,3-12,4 11,5-11,7 10,9-11,0

En

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

WPP 001/4 DAF 11,6 u 1

1. Edition

En

PE 6 P 110 A 720 RS 441 RQ 225/1200 PA 617

supersedes

DAF  
company  
DHS 825  
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,2+0,1	13,7-13,9	0,4 (0,8)			
225	5,2-5,4	0,7-1,1	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	15,6-16,4	650	16,0	11,2 4,0 1450	1235-1250 1310-1340 0 - 1,0	225	5,3	100 225 360-400 = 2,0	min. 6,3 5,2 - 5,4	1000 1190	12,2-12,3 12,1-12,3

Torque-control travel on flyweight assembly dimension a =  mm Speed regulation: At 1235-1250 min<sup>-1</sup> 1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes / mm Control rod travel 7
LDA 1000	0,7 bar 136,5-138,5 (133,5-141,5)	-		LDA 600	0 bar 91,5-94,5 (88,5-97,5)	100	245,0-285,0 = 19,5-21,0 mm RW

Checking values in brackets

Testoil-ISO 4113

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS441 + RQ..PA617	0,36		11,7 - 11,8
		0,70	12,2 - 12,3
		0	10,4 - 10,5
		0,30	11,0 - 11,2

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications

## Fuel Injection Pumps ②

### and Governors

WPP 001/4 DAF 11,6 i 8

1. Edition

En

PE 6 P 110 A 320 RS 372-1

RQ 250/1100 PA 417-1

supersedes  
company: DAFengine: DKTD 1160  
191 kW (260 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0±0,1	13,7-13,9	0,4(0,8)			
250	6,6-6,8	0,6-1,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,7-16,4	700	16,0	11,0 4,0 1350	1145-1160 1220-1250 0 - 1,0	250	6,7	100 250 460-500 = 2,0	min. 7,8 6,6-6,8	850 1100	12,0-12,1 11,9-12,1

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1145-1160 min<sup>-1</sup>1 mm less control  
rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 850	0,7 bar 137,0-139,0 (134,0-142,0)	-	LDA 600	0 bar 127,5-130,5 (124,5-133,5)	100	245,0-285,0 = 19,5-21,0 mm RW

Checking values in brackets

Testoil-ISO 4113

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS372-1 + ..PA417-1	0,30		11,8 - 11,9
		0,70	12,0 - 12,1
		0	11,4 - 11,5
		0,26	11,5 - 11,7

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 11,6 •  
3. Edition

En

**Testoil-ISO 4113**

PE 6 P 110 A 320 RS 372 RQ 250/1100 PA 417R

supersedes 8,81

company DAF

engine: DKTD 1160

191 kW (260 PS)

1 - 5 - 3 - 6 - 2 - 4

 $0-60-120-180-240-300^0 \pm 0,5^0 (\pm 0,75^0)$ 

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75-2,95)  
2,80-2,90

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0	13,7 - 13,9	0,4 (0,8)			
250	<sup>+0,1</sup> 6,6-6,8	0,7 - 1,1	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	11,0	1145-1160	250	6,7	100	min. 7,8	850	12,0-12,1
				4,0	1220-1250			250	6,6-6,8	1100	11,9-12,1
				1350	0 - 1,0			450-600	10=2,0 1,0		

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA	0,7 bar			LDA	0 bar		
850	137,0 - 139,0 (134,0 - 142,0)			600	127,5 - 130,5 (124,5 - 133,5)	100	19,5-21,0 mm RW 245,0-285,0

Checking values in brackets

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing  
 xxxxxxxx

Pump/governor	Setting	Measurement	Control rod <del>xxxxxx</del> diminution difference xxxxxxx (1)
..RS 372 + ..PA 417R	0,30 Gauge pressure = bar	0,70 Gauge pressure = bar 0,26 0	12,0-12,1 11,8-11,9 11,5-11,7 11,4-11,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4DAF 8,3 L1

5. Edition

En

supersedes 8.81

company DAF

engine: DHU 825

**Testoil-ISO 4113**

PE6P100A720RS373

RQ250/1200PA418R

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{2,50-2,60}{(2,45-2,65)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,3-12,4	12,8 - 13,0	0,3(0,6)			
250	7,2-7,4	0,8 - 1,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10		Control rod travel mm 12	
650	15,6-16,4	650	16,0	11,3	1245-1260	250	6,0	100	min. 8,4	1000	12,3+0,1
				4,0	1320-1350			250	7,2-7,4	650	12,3+0,2
				1450	0 - 1,0			470-510	=2,0		

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation. At 1245-1260 min<sup>-1</sup>

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7	Control rod travel
LDA	0,7 bar			LDA	0 bar	100	195,0-215,0
1000	127,5 - 129,5 (125,5 - 131,5)			500	89,5 - 92,5 (87,5 - 94,5)		19,5-21,0 mm RW

Checking values in brackets

11.82

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D23

D23

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 XXXXX  
 XXXXX

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
..RS 373 + ..PA 418R	0,34		12,0-12,1
		0,70	12,3-12,4
		0	11,2-11,3
		0,30	11,5-11,7

## Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 CAS 8,3 a

1. Edition

En

PES 6 A 100 D 420 LS 3024 US-EP/RSV 375-1100 A2B 2062 DR

supersedes

company Case  
engine A-504 BDT  
210 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,0-2,1$  mm (from BDC)  
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,6+0,1	14,0-14,2	0,3 (0,6)			
375	6,5 - 6,6	1,8-2,4	0,3 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min Control rod travel 10 11	
	Control rod travel mm 2	Control rod travel mm rev/min 3								
loose	800	0,3-1,0	-	-	-	ca. 23	375	6,0	1100	11,6+0,1
	x =						100	min. 19,0	700	12,0+0,3
							375	6,4 - 6,6	600	12,1+0,1
ca. 50	10,6	1140-1150					410-470	= 2,0		
2a	4,0	1205-1235					800	max. 1,0		
	1260	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to ) rev/min 3		3a Fuel delivery characteristics rev/min cm <sup>3</sup> /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm <sup>3</sup> /1000 strokes 6 7		4a Idle stop rev/min Control rod travel mm 8 9	
1100	139,5-141,5 (137,5-143,5)	1140-1150*		700	142,0-148,0 (140,0-150,0)	100	130,0-150,0	375	6,5
				600	max. 158,0 (max. 150,0)				

Checking values in brackets

\* 1 mm less control rod travel than col 2

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 1

3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 385

RSV 250-750 P7/479

supersedes 2.82

company DAF

engine DK, DKT, DKS, DKA 1160

1 - 5 - 3 - 6 - 2 - 4  
0 - 60 - 120 - 180 - 240 - 300  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

(2,75-2,95)  
Port closing at prestroke 2,80-2,90 mm (from BDG RW 9,0 - 12,0)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,6 $\pm 0,1$	16,9 - 17,1	0,4(0,8)			
250	6,8-7,0	2,6 - 3,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control							
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm						
1	2	3	4	5	6	7	8	9	10	11						
loose	700	0,3-1,0				ca. 18	250	6,9								
	X =	3,25														
ca. 44	790-795 =	11,6											250	6,8-7,0		
	810-825 =	4,0											245-305=	2,0mm		
2a	950 =	0,3 - 1,7														

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to . ) rev/min				Idle			
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
750	169,0 - 171,0 (166,0 - 174,0)	790- 795 *				100	19,5-21,0 mm RW		
						250	26,0-34,0		

Checking values in brackets

\* 1 mm less control rod travel than col 2

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E2



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 4,4 a

1. Edition

En

PES 4 A 95 D 320 RS 2654

RSV 325-1050 A 2 B 21/8 R

supersedes  
company Valmet  
411 DS 8  
engine

1-2-4-3 je  $90^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,5-2,6$   
(2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,6+0,1	8,5-8,7	0,3 (0,6)			
325	7,2-7,4	1,2-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3					rev/min 8	Control rod travel mm 9		rev/min 10	
loose	800	0,3-1,0	-	-	-	ca. 31	325	6,3	1050	10,6-10,7
	x = 6,5						100	min.19,0	500	11,2-11,3
ca.53	9,6	1090-1100					325	6,7-6,9	900	10,8-11,1
2a	4,0	1225-1255					640-700	=2,0		
	1390	0,3-1,7					775	max. 1,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to .) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel mm 9	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7		rev/min 8	
1050	84,5-86,5 (82,5-88,5)	1090-1100*	500	80,5-83,5 (78,5-85,5)	750	156,5-166,5 = 19,5 - 21,0 mm RW	100	5	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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11.82

# Test Specifications Fuel Injection Pumps ② and Governors

**Testoil-ISO 4113**

PE 6 P 100 A 320 RS 384 RQ 225/1000PA 442 R

supersedes 6.81

company: DAF

engine: DKDL 1160  
(125kW-170PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,20-3,30}{3,15-3,35}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,0-11,1	9,8 - 10,0	0,3(0,6)			
250	7,1-7,3	0,9 - 1,3	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12	
550	15,6-16,4	550	16,0	9,1	1055-1070	250	7,2	100	mind.8,7	1000	10,1-10,3
1200	0,3-1,0			4,0	1080-1110			250	7,1-7,3	805	10,2-10,5
								330-370	=2,0	710	10,7-10,9
										600	11,0-11,1

Torque-control travel  
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7	
600	98,0 - 100,0 (96,0 - 102,0)			1000	93,0 - 97,0 (91,0 - 99,0)	100	170,0 - 210,0 19,5 - 21,0 mm RW
						250	9,0 - 13,0

Checking values in brackets

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11.1 g 2

2. Edition:

En

**Testoil-ISO 4113**

PES 6 A 95 D 410 LS2485 RQ 250/1050 AB965DL

supersedes 10.77  
MAN  
company D 2566 MR/MFR  
engine: 172 kW (234 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{1,50-1,60}{(1,45-1,65)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,7+0,1	12,3 - 12,5	0,3 (0,6)			
250	6,5-6,7	1,3 - 1,9	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12
600	15,6-16,4	600	16,0	10,7	1095-1110	250	6,6	100	min. 8,0	-	-
				4,0	1145-1175			250	6,5-6,7		
				1250	0 - 1,0			365-500	425=2,0 0-1		

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation: At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		Control rod travel mm 7
1050	123,0-125,0 (121,0-127,0)			500	111,5-115,5 (109,5-117,5)	100	120,0 - 130,0 = 13,7-14,3 mm RW
						250	6,0 mm RW

Checking values in brackets

11.82

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E5

E5

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 CAS 5,5 a

1. Edition

En

PES 4 A 95 D 420 LS 3023 US-RSV 375-1100 A 2 B 2078 R

supersedes

company CASE  
A-336 BDT

engine 90 kW (122 PS)

Inlet pressure 1.5 bar  
overflow valve 9 681 273 009

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,1+0,1	11,9-12,1	0,3(0,6)			
375	5,6-5,7	1,6-2,1	0,3(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	375	5,1	1100	11,1-11,2
	X =						100	min. 19,0	750	11,4-11,7
							375	5,5-5,7	600	11,7-11,8
ca. 45	10,1	1140-1150					460-520	=2,0		
2a	4,0	1165-1195					600	max. 1,0		
	1250	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)								
rev/min 1	cm <sup>3</sup> /1000 strokes 2	Note changed to ... rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	119,0-121,0 (117,0-123,0)	1140-1150*	750	123,0-129,0 (121,0-131,0) max. 125,5 (max. 127,5)	100	138,0-144,0 = ca. 17,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

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E6

E6

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 STE 9,7a

1. Edition

En

PE6P110A721RS 3102

RQV 250-1200 PA 257-1

supersedes

company Steyr

engine: WD 615.84

180 kW (245 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,8-2,9) mm (from BDC) = RW 9,0-12,0 mm  
(2,75-2,95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,3+0,1	13,7-13,9	0,4(0,8)			
250	7,2-7,4	1,3-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250	15,2-17,8	-	-	-	ca. 11	100	min. 8,8	200	0,5-0,7
ca. 46	11,3	1240-1250					250	7,2-7,4	530	3,5-3,7
	4,0	1300-1330					350-410	=2,0	870	5,1-5,5
	1450	0 -1,0							1200	7,9

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1200	0,7 bar 137,0-139,0 (134,0-142,0)	1240-1250*	LDA 700	0,7 bar 144,0-148,0 (141,0-151,0)	100	125,0-145,0	1200 500 1060 880	12,3+0,1 12,7+0,1 12,3+0,3 12,5+0,3
			LDA 700	0 bar 96,0-100,0 (93,0-103,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

STE 9,7 a -2-

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P..RS3102 + RQV..PA 527-1	0,37	0,70 0 0,23	11,8 - 11,9 12,7 - 12,8 10,2 - 10,3 10,7 - 10,8

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 STE 9,7 b

1. Edition

En

PE6P110A721 RS 3101

RQV 250-1200 PA 413

supersedes -

company:

Steyr

engine:

WD 615.67

206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 mm (from BDC)  
(2,75-2,95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,0+0,	15,2-16,4	0,4(0,8)			
250	5,8-6,0	1,2- 1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1290	15,2-17,8	-	-	-	ca. 11	100 250	min. 7,5 5,8-6,0	200 530 870	0,6-0,8 3,2-3,8 5,4-5,8
ca. 45	11,0 4,0 1450	1240-1250 1335-1365 0 - 1,0				3a	360-420 = 2,0		1200	7,7

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery Idle starting point 6		Torque-control travel 5	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1200	0,7 bar 162,0-164,0 (159,0-167,0)	1240-1250*	LDA 700	0,7 bar 165,0-169,0 (163,0-171,0)	100	240,0-270,0	1200 500 880 1060	12,0+0,1 12,5+0, 12,2+0, 12,0+0,2
			LDA 700	0 bar 120,0-125,0 (118,0-127,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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Testoil-ISO 4113

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

STE 9,7 b -2-

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	diminution difference mm (1)
PE6P.. RS 3101 + RQV.. PA 413	0,53	0,70 0 0,38	11,5 - 11,6 12,0 - 12,1 9,8 - 9,9 10,2 - 10,7

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 e

5. Edition

En

PES 6 A 95 D 410 RS 2471 RSV 325-1150 A 8 B 707 DL

supersedes 9.82  
company KHD  
engine BF 6L 913C  
132 kW  
2300 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (1,85 - 2,05 )  
1,90 - 2,00 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8	10,6 - 10,8	0,3 (0,6)			
325	+ 0,1 7,1-7,3	0,9 - 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0 x = 4,7				ca. 21	325	6,7	1150	11,8-11,9
ca. 55		1190-1200=10,8 1235-1265= 4,0 1400=0,3-1,7					100	min. 19	500	11,8-12,0
2a							325	7,1-7,3 590-650 = 2,0		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1150	0,5 bar 105,0 - 107,0 (103,0 - 109,0)	1190-1200*	LDA 850	0,5 bar 97,5 - 101,5 (95,5 - 103,5)	100	125 - 135	325	5,5	

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

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Testoil-ISO 4113

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2471 +..A 8 B 707 DL	0,07	0,50 0,28 0	10,1-10,3 11,8-11,9 11,5-11,6 9,9-10,1

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 6,2 c 1

1. Edition

En

PES 6 A 90 D 320/3 RS 2464-1 RSV 325-1200 AOB 2181 R

supersedes

company MWM

engine TD 226-6

107 kW (145 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 2,15-2,25 \\ (2,10-2,30) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,6+0,1	7,5-7,6	0,3 (0,45)			
325	7,4-7,6	0,5-1,5	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 20	325	7,0	1180	10,6-10,7
	x = 3,75						325	7,4-7,6	500	11,5-11,6
ca. 46	9,6	1240-1250					520-580	2,0	875	11,0-11,2
2a	4,0	1300-1330								
	1460	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	cm <sup>3</sup> /1000 strokes 5	6	rev/min 7	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1200	0,7 bar 74,5-75,5 (72,5-77,5)	1240-1250*	LDA 500	0 bar 59,5-60,5 57,5-62,5)	100	113,0-123,0 = 19,5- 21,5 mm RW		-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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11.82

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PES 6 A..RS 2464-1 +..AOB 2181 R	0,14	0,70 0 0,13	11,3-11,4 11,5-11,6 11,0-11,1 11,1-11,3

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 m

2. Edition

En

PE 6 P 110 A 720 RS 3006 RQV 250-1100 PA 184 R (1)  
.. PA 242 R (2)

supersedes  
company Scania  
engine DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,3-3,4$  mm (from BDC)  
(3.25-3.45)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,0+0,1	13,3-14,1	0,6			2,5 ± 0,1 ** (max. 2,2-2,9)
600	9,0-9,1	6,8-8,0				
	12,0+0,1	13,1-14,6				
	15,0+0,1	19,9-21,6				
200	9,0-9,1	4,4-5,4				

Adjust the fuel delivery from each outlet according to the values in .

\*\*In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly

## B. Governor Settings

RQV..PA 184 R (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1150 1440	16,0-19,0 0	-	-	-	ca. 10	100 250 400 550 680	6,3-7,9 4,8-6,4 2,5-3,8 1,0-2,4 0	1170	8,3
ca. 62	1100 1200 1300 1400	15,0-17,4 8,4-12,3 1,0-6,4 0				3a				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 173,9-175,0 (171,0-177,0)	1135-1145*	LDA 600	0,7 bar 173,0-177,0 (171,0-179,0)	100	190,0-240,0	-	-
			LDA 500	0 bar 135,0-141,0 (133,0-143,0)	225	10,0-12,0		
					1200	29,0-34,0		
						dispersion max. 2,0		
						dispersion max. 4,0		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

Testoil-ISO 4113

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## B. Governor Settings

RQV.. PA 242 R (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1120 1200 1300 1410	15,0-17,6 9,2-13,6 1,0-7,6 0	-	-	-	ca. 10	150 250 400 500	6,5-8,0 3,6-6,1 1,1-2,4 0	1120	8,3
						(3a)				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,7 bar 161,0-163,0 (159,0-165,0)	1135-1145*	LDA 600	0,7 bar 160,5-163,5 (158,5-165,5)	100	190,0-240,0		
			LDA 500	0 bar 133,0-137,0 (131,0-139,0)	225	11,0-13,0		
					1200	29,0-34,0		
						Dispersion max. 2,0		
						Dispersion max. 4,0		

Checking values in brackets

\* 1 mm less control rod travel than co: 2

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference XXXXXXXXXX
	Gauge pressure = bar	Gauge pressure = bar	mm
PE 6 P..RS 3006 + RQV ..PA 184 R	0,43-0,46	0,20-0,24	0,1 1,3
PE 6 P..RS 3006 + RQV ..PA 242 R	0,40-0,42	0,20-0,24	0,1 1,1

En

# Test Specifications Fuel Injection Pumps and Governors

En

**Testoil-ISO 4113**

PES 6 A 85 D 410 RS 2591

RS 325/1325 AOB 691 DL

supersedes 9.82

company: KHD

engine: BF 6 L 913 - BW

124 kW(169 PS)

bei 2650 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{2,50-2,60}{(2,45-2,65)}$  mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1325	12,8-12,9	9,0 - 9,1	0,3(0,45)			
325	8,4-8,6	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

 VH=Control lever Vertical position =40°  
 FH=Accelerator lever Horizontal position=40°

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
100se	800	0,3-1,0				FHca.2	325	8,5	325	12,8-12,9
						VHmax.	100	min.10,0	1000	12,8-12,9
VHva.53	1365-1375	11,8					400-425	6,0	850	12,9-13,1
⑤ max.	1415-1445	4,0							500	12,9-13,1
	1575	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA	0,7 bar		LDA	0,7 bar					
1325	90,5 - 91,5 (88,5 - 93,5)	1365-1375*	1000	85,0 - 88,0 (83,0 - 90,0)	100	104,0-114,0 = 17,8-18,2 mm RW			
			LDA	0,7 bar		Electromagnet 24V			
			350	83,5 - 86,5 (81,5 - 88,5)					
		LDA 0 bar	500	55,5 - 58,5 (53,5 - 60,5)					

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.32

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
 XXXXXXXXXXXX

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
2591 + 691 DL	0,7	0,430 0,160 0	12,9 - 13,1 12,7 - 12,8 12,1 - 12,3 11,5 - 11,7

## Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 6,1 a 1

2. Edition

En

PES 6 A 85 D 410/3 RS 2415

RS 325/1325 AOB 691 DL  
709 DL

supersedes 6.82

company: KHD

engine: BF6 L 913

Test RS governor according to WPP 001/4, KHD 1 c.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>1,9-2,0</sup>  
(1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	11,4+0,1	7,6 - 7,7	0,3(0,45)			
325	8,2-8,4	1,4 - 2,0	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-		325	6,5	1325	11,4+0,1
	X =	7,0					100	min.16,0	500	11,9+0,2
							325	6,4-6,6	1060	11,5+0,2
ca.68	10,4	1355-1365					500	3,4-4,0		
⑤	4,0	1450-1480					1330-1370	2,0		
	1600	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1325	0,7 bar 76,0-77,0 (74,0-79,0)	1355-1365*		LDA 500	0 bar 44,0-47,0 (42,0-49,0)	100	15,0-16,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 800 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2415 + ..AOB 691 DL + ..AOB 709 DL	0,27		11,0 - 11,3
		0,70	11,9 - 12,1
		0,37	11,6 - 11,7
		0	10,7 - 10,9

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 n 4

1. Edition

En

PE 6 P 110 A 320 RS 407-1 RQ 275/1000 PA 641-1

supersedes

company DAF  
engine: DKCL

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,8-2,9$  mm (from BDC) RW 9,0-12,0 mm  
(2,75-2,95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,3+0,1	13,9-14,1	0,4(0,8)			
275	7,0-7,2	1,0-1,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,3 4,0 1300	1045-1060 1105-1135 0 - 1,0	275	7,1	100 275 345-	min. 8,6 7,0-7,2 385=2,0	600 1000 815 985	12,3+0,1 11,1+0,2 12,0+0,2 11,3+0,4

Torque-control travel  
on flyweight assembly dimension a =

0,6

mm

Speed regulation: At

1045-1060 min

-1

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 600	0,5 bar 139,0-141,0 (136,0-144,0)	-		LDA 1000	0,5 bar 114,5-119,5 (111,5-122,5)	100	245,0-285,0 = 19,5-21,0 mm RW
				LDA 600	0 bar 136,5-139,5 (133,5-142,5)		

Checking values in brackets

12.82

Testoil-ISO 4113

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E21

E21

## D. Adjustment Test for Manifold Pressure Compensator

Test at  $n = 600$  rev/min decreasing pressure - in bar gauge pressure  
increasing pressure

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P.. RS 407-1 + RQ.. PA 641-1	0,28	0,50 0	12,2-12,3 12,3-12,4 12,1-12,3

Notes

(1) when  $n =$

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 d

6. Edition

En

PE 8 MW 100/720 LS 1010  
RQV 300-1150 MW 23  
Komb. 0 403 548 002

superseded 11.82

company KHD

engine: BF 8 L 413 F  
212 kW (288 PS)  
= 2100 min<sup>-1</sup>  
bzw. 206 kW  
= 2300 min<sup>-1</sup>  
(Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,10-3,20}{(3,05-3,25)}$  mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,2 <sup>+0</sup>	13,1 - 13,3	0,35(0,6)			
300	6,3-6,5	1,25- 1,65	0,35(0,55)			
500	9,9-10,0		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1180 1400	15,2-17,8 0 - 1,0				ca. 18	100 300	min. 7,8 6,3-6,5		
ca. 63	9,2 4,0	1160-1170 1235-1265				3a	430-490 = 2,0			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
LDA 750	0,74 bar 131,0-133,0 (129,0-135,0)	1160 - 1170*	LDA 500	0 bar 87,5 - 89,5 (85,5 - 91,5)	100	136,5-146,5 (133,5-149,5)	750 500 150	12,2+0,1 11,2+0,3 10,2+0,3
					100-230 (80-250)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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**Testoil-SC 4113**

E23

E23

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
LS 1010 + MW 23	0,16	0,5 0,74 0	10,3 - 10,5 11,8 - 11,9 12,2 - 12,3 9,9 - 10,0

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 OMB 8.1 c1

1. Edition

En

PES 6 MW 100/720 RS 1012 RQV 425-1100 MW 35  
0 403 446 126  
1 - 5 - 3 - 6 - 2 - 4  
0 - 60 - 120 - 180 - 240 - 300  $\pm$  0,50 (0,75)

supersedes  
company OM-Brescia  
8365.25.522  
engine: 112 KW (152 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,90 - 3,00$   
( $2,85 - 3,05$ ) mm (from BDC) RW  $9,0 - 12,0$  mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,2+0,1	8,15-8,35	0,35(0,6)			
425	5,8-6,0	1,05-1,45	0,35(0,55)			
700	11,1+0,1		0,5 (0,7)			
500	10,6+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100 1300	15,2-17,8 0 - 1,0	-	-	-	ca. 14	425 100	5,8-6,0 min. 7,5		
ca. 48	9,2 4,0	1140-1150 1185-1215				3a	470-530 = 2,0			

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9 +0,1
LDA 1100	0,5 bar 81,5-83,5 (79,5-85,5)	1140-1150*	LDA 700	0,5 bar 84,5 - 88,5 (82,5-90,5)	100	max. 19 RW min. 160,0	700 1000	11,1 10,2
			LDA 500	0 bar 67,5 - 69,5 (65,5 - 71,5)	100-220 (80-240)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1012 + RQV.. MW 35	0,25		10,9 - 11,0
		0,5	11,1 - 11,2
		0	10,6 - 10,7

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 o3

1. Edition

En

PE 6 P 110 A 320 RS 3080-1 RQV 250-1025 PA 589

supersedes -

company: Volvo

engine: TD 100 FA

220 kW (299 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

3,0 - 3,1  
(2,45-3,15)

mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,7+0,1	17,9 - 18,1	0,4(0,8)			
250	4,0-4,2	1,7 - 2,1	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1090	15,2-17,8	-	-	-	ca. 8	100	min.5,6	200	0,7-0,9
ca. 64	11,7	1085-1095					250	4,0-4,2	475	3,9-4,5
	4,0	1135-1165							660	6,4-6,6
	1300	0 - 1,0					305-365 = 2,0		bis 545	7,6
						③a			1025	

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	0,75 bar	1085-1095*	LDA	0 bar	100	150,0-200,0	-	-
700	179,0-181,0 (176,0-184,0)		1000	170,0-174,0 (167,0-177,0)		= 20,0-21,0 mm RW		
			LDA	0 bar				
			700	130,5-133,5 (127,5-136,5)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.82

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P .. RS 3080-1 + RQV .. PA 589	0,42		12,0 - 12,1
		0,75	12,7 - 12,8
		0	9,9 - 10,0
		0,26	10,6 - 10,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 o2

1, Edition

En

PE 6 P 110 A 320 RS 3080-1 RQV 250-1100 PA 589

supersedes-

company: Volvo

engine: TD 100 F

220 kW (299 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Batches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,0 - 3,1$  mm (from BDC) = RW  $9,0 - 12,0$  mm  
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,7+0,1	17,9 - 18,1	0,4(0,8)			2,5 ± 0,1
250	4,0-4,2	1,7 - 2,1	0,3(0,6)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 8	100	min. 5,6	200	0,7-0,9
ca. 63	11,7	1160-1170					250	4,0-4,2	500	4,2-4,8
	4,0	1215-1245					305-365 = 2,0		600	6,4-6,6
	1350	0 - 1,0				3a			1040	
									1100	7,6

Torque control travel = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics high idle speed ⑤b ⑤a		Starting fuel delivery idle switching point ⑥	Torque-control travel ⑤ Control rod travel mm		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	0,75 bar	1160-1170*	LDA	0 bar	100	150,0-200,0	-	-
700	179,0-181,0 (176,0-184,0)		1000	170,0-174,0 (167,0-177,0)		= 20,0-21,0 mm RW		
			LDA	0 bar				
			700	130,5-133,5 (127,5-136,5)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.62

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**Testoil-ISO 4113**

F5

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P .. RS 3080-1 + RQV .. PA 589	0,42		12,0 - 12,1
		0,75	12,7 - 12,8
		0	9,9 - 10,0
		0,26	10,6 - 10,8

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 c

4. Edition

En

PE 8 MW 100/720 LS 1010  
RQV 900-1250 MW 31  
Komb. 0 403 548 003

superseded 9.82

company: KHD

engine: BF 8 L 413 F  
235 kW (320 PS)  
2500 min

Testoil-ISU 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,10-3,20$   
(3,05-3,25) mm (from BDC) RW 9.0 - 12.0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,2 <sup>+0,1</sup>	13,0 - 13,2	0,35(0,6)			
300	6,4-6,6	1,25- 1,65	0,35(0,55)			
850	12,7 <sup>+0,1</sup>		0,5 (0,7)			
500	9,7 <sup>+0,1</sup>		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1250 1500	15,2-17,8 0 - 1,0				ca. 15	100 300 670-730=2,0	min. 8,4 6,8-6,9		
ca. 65	11,2 4,0	1290-1300 1375-1405				380-440 ③a				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1250	0,9 bar 130,0-132,0 (128,0-134,0)	1290-1300*	LDA 850	0,9 bar 130,5-134,5 (128,5-136,5)	100	136,5-146,5 (133,5-149,5)	850 950 1200 1250	12,7 <sup>+0,1</sup> 12,4 <sup>+0,1</sup> 12,2 <sup>+0,1</sup> 12,2 <sup>+0,1</sup>
			LDA 500	0 bar 84,5- 86,5 (82,5- 88,5)	300	12,5-16,5 (9,0-18,0)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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11.82

F7

# D. Adjustment Test for Manifold Pres

compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing  
XXXXXXX

Pump/governor	Setting	Measurement	Control rod travel - diminution - difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar	
LS 1010 + MW 31	0,9 bar	0,4 0,3	12,7 - 12,8 11,9 - 12,0 10,4 - 10,6

## Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 g

4. Edition

En

PE 6 P 110 A 320 RS 413 RQV 250-1200 PA 499

supersedes 5.81

company: Volvo

engine: TD 70 F

174 kW (237 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{matrix} 3,0-3,1 \\ (2,95-3,15) \end{matrix}$  mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,4+0,1	12,7-12,9	0,4(0,8)			
250	5,2-5,4	1,6-2,0	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 9	100	min. 6,9	200	0,6-0,9
ca. 62	11,4	1240-1250					250	5,2-5,4	530	3,2-3,6
	4,0	1370-1400					440-500 = 2,0		870	5,8-6,0
	1500	0 - 1,0							1200	8,2

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑧		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,75 bar 127,0-129,0 (124,0-132,0)	1240-1250 *	LDA 700	0 bar 78,0-81,0 (75,0-84,0)	100	160,0-200,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.82

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P .. RS 413 + RQV..PA 499	0,51	0,75 0 0,30	12,0-12,1 12,4-12,5 10,2-10,4 10,7-10,9

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 g 1

1. Edition

En

PE 6 P 110 A 320 RS 413 Z RQV 250-1200 PA 499

supersedes

company: Volvo

engine: TD 70 G

155 kW (210 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $3,0-3,1$   
 $(2,95-3,15)$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,1+0,1	10,2-10,4	0,4(0,8)			
250	4,9-5,1	1,6-2,0	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 9	100	min. 6,5	200	0,6-0,8
ca.59	10,1 4,0 1500	1240-1250 1355-1385 0 - 1,0				300-410	250	4,9-5,1	530 870 1200	3,1-3,5 5,6-5,9 7,9

Torque control travel a =  mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑧		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,75 bar 102,0-104,0 (99,0-107,0)	1240-1250*	LDA 700	0 bar 78,0-81,0 (75,0-84,0)	100	160,0-200,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2  
12.82
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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P .. RS 413 + RQV.. PA 499	0,34	0,75 0 0,27	10,8-10,9 11,1-11,2 9,8-9,9 10,3-10,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 DAF 11,6 o3

1. Edition

En

PE 6 P 120 A 320 RS 415-1 RSV 250-900 P 5/475

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

supersedes DAF

company DKS-E 1160

engine 206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	11,9+0,1	18,4 - 18,7	0,5(0,9)			
250	6,7-6,9	1,9 - 2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	6,3	650	12,1-12,2
	x	= 5,0					250	6,7-6,9	900	11,4-11,6
							395-455	= 2,0		
ca. 46	10,4	940-950								
2a	4,0	1025-1055								
	1200	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to ) rev/min				Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	cm <sup>3</sup> /1000 strokes 5	6	rev/min 7	cm <sup>3</sup> /1000 strokes 8	rev/min 9	Control rod travel mm 10
LDA 650	0,7 bar 184,0-187,0 (181,0-190,0)	940-950*	LDA 900	0,7 bar 181,0-186,0 (178,0-189,0)	100	310,0-350,0 = 19,5 - 21,0 mm RW		250	6,8
			LDA 600	0 bar 129,0-132,0 (126,0-135,0)					

Checking values in brackets

\* 1 mm less control rod travel than col 2

12.82

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P .. RS 415-1 + RSV .. P 5/475	0,27		11,4 - 11,5
		0,70	11,9 - 12,0
		0	9,8 - 9,9
		0,12	10,0 - 10,6

### Notes

(1) when n = rev/min and gauge pressure = bar ( = maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 o 1  
3. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 320 RS 415

RSV 250-900P5/475

supersedes 8.81

company DAF

engine DKS-1160 E1160  
206 kW (280 PS)

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019  
and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

2,90-3,00

Port closing at prestroke (2,85-3,05)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	11,9-12,0	18,4 - 18,7	0,5 (0,9)			
250	6,7-6,9	1,9 - 2,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees 7 rev/min 8			3 Torque control Control rod travel rev/min 10 mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3					Control rod travel mm 9				
loose	800 0,3-1,0 x = 5,75					250	6,3		900	11,4-11,6
ca. 46	940-950 = 10,5					250	6,7-6,9		650	12,1-12,2
2a	1025-1055=4,0 1200=0,3-1,7					395-455	= 2,0			

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to .) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel rev/min 8 mm 9	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes 7			
LDA	0,7 bar			LDA	0,7 bar	100	310 - 350 = 19,5 - 21,0 mm RW	250	6,7
650	184,0 - 187,0 (181,0 - 190,0)	940-950 *		900	181,0-186,0 (178,0-189,0)				
				LDA	0 bar				
				600	129,0 - 132,0 (126,0 - 135,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.82

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F15

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
 increasing  
 XXXXXX

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 415 m. RSV..P5/475	0,7	0,26 0,12 0	11,9-12,0 11,4-11,5 10,0-10,6 9,8-9,9

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 g 3  
2. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 A 8 B 2168

supersede 6.82

company: KHD

engine: BF 4 L 913 T

66 kW (90 PS)<sub>-1</sub>  
2300 min<sup>-1</sup>

Tractor DX 92 (1)

60 kW (82 PS)<sub>-1</sub>  
2300 min<sup>-1</sup>

Tractor DX 86 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,5-2,6</sup>  
(2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery (1) cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery (2) cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8+0,1	8,2 - 8,3	0,3(0,45)	10,6+0,1	7,5-7,6	
325	7,7-7,9	1,0 - 1,6	0,2(0,4)	7,7-7,9	1,0-1,6	

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 26	325	7,3	1150	11,8+0,1
	X = 4,0						100	min. 19,0	500	12,6+0,1
							325	7,7-7,9	875	12,0+0,3
ca. 54	10,8	1190-1200					720-780	= 2,0		
⑤	4,0	1325-1355								
	1475	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min						Control rod travel mm	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9	
(1) 1150	82,0-83,0 (80,0-85,0)	1190-1200*	800	74,5-77,5 (72,5-79,5)	100	108,5-118,5	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

Testoil-ISO 4113

**B. Governor Settings**

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.26	325	7,0	1150	10,5+0,1
	x = 4,0						100	min.19,0	500	11,2+0,1
ca.56	9,6	1220-1230					325	7,4-7,6	900	10,9+0,3
	4,0	1325-1355					720-780	= 2,0		
②a	1475	0,3-1,7								

**C. Settings for Fuel Injection Pump with Fitted Governor**

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
(2) 1150	74,5-75,5 (72,5-77,5)	1220-1230*		800	65,5-68,5 (63,5-70,5)	100	108,5-118,5	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

**Testoil-ISO 4113****B. Governor Settings**

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

**C. Settings for Fuel Injection Pump with Fitted Governor**

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9

Checking values in brackets

\* 1 mm less control rod travel than col. 2

En



# Test Specifications

## Fuel Injection Pumps ③ and Governors

WPP 001/4 DAI 1,9 h  
2. Edition

PES 4M 50 A 320 RS 14 EP/MN 60 M 12 d. M 13 d  
... RS 14 Z (See reverse side)

supersedes 6.10.61  
company: Daimler-Benz  
engine: OM 621.912  
(190 D-55 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke 1,7-1,8 mm (from BDC) RW 18

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 5	Fuel delivery cm <sup>3</sup> /100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
1000	15	2,9-3,4	0,2			
1000	9	0,8-1,2				
1000	18	3,7-4,3				
200	9	0,7-1,1				

Adjust the fuel delivery from each outlet according to the values in

### B. Governor Settings

Torque control travel mm 1	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col 2	Time at least s 3	Vacuum mm w.c. 4	Control rod travel mm 5	Vacuum mm w.c. 6	Control rod travel mm 7	Vacuum mm w.c. 8	Control rod travel mm 9	Vacuum mm w.c. 10	Control rod travel mm 11
1,2+0,1	500-480	10	-	-	435 465 500 570	13,7* 8,2-13,3 3,1-9,5 0 - 3,6	-	-	150 250 350	14,9-15,0 14,5-14,8 13,8-14,2

control rod travel test (cols. 4-11)  
= rotational speed 500 rev/min  
adjust breakaway (cols. 4-5) by means of shims\*  
cam adjustment (B 8-9 - C 7-8) by means of shims\*\*

\* Set breakaway between 440 - 460 mm water column by inserting WMS 22 S 18-19 X washers under the governor spring.

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics			Idle (stop)** idle (imbalance)		Control rod travel from full-load to idle mm cm <sup>3</sup> /1000 strokes
rev/min 1	Vacuum mm wat. col 2	cm <sup>3</sup> /1000 strokes 3	rev/min 4	Vacuum mm wat. col 5	cm <sup>3</sup> /1000 strokes 6	rev/min 7	Vacuum mm wat. col 8	
2000	430-435	32,7-33,7	1600	300	31,2-33,2			
			1000	100	31,7-33,7			
			250	cd.480	4,5-10,5 Dispersion max. 1,5			

Checking values in brackets

1.33

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## B. Governor Settings

Pumpe S 14 Z

DAI 1,9 h - 2 -

Torque control travel mm 1	Leakage		Control rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col 2	Time at least s 3	Vacuum mm w c 4	Control rod travel mm 5	Vacuum mm w c 6	Control rod travel mm 7	Vacuum mm w c 8	Control rod travel mm 9	Vacuum mm w c 10	Control rod travel mm 11
1,2+0,1	500-480	10	-	-	430 465 500 575	12,8* 7,2-12 2,0-8,2 0 - 2,5	-	-	150 250 350 430	14 - 14,1 13,6-13,9 12,9-13,3 12,8

Control rod travel test (cols 4-11)  
- rotational speed 500 rev/min  
adjust breakaway (cols 4-5) by means of shims\*  
cam adjustment (B 8-9 - C 7-8) by means of shims\*\*

\* Set breakaway between 440 - 460 mm water column by inserting WMS 22 S 18-19 X washers under the governor spring.

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F)			Fuel delivery characteristics			Idle (stop)** Idle (imbalance)		Control rod travel from full-load to idle mm cm / 1000 strokes 8
rev/min 1	Vacuum mm wat col 2	cm / 1000 strokes 3	rev/min 4	Vacuum mm wat col 5	cm / 1000 strokes 6	rev/min 7	Vacuum mm wat col 8	
2000	430-435	29,7-30,7	1600 1000	300 100	28,2-30,2 28,7-30,7		** Seite 3	
			250	ca. 480	4,5-10,5 Dispersion max. 1,5			

Checking values in brackets

## B. Governor Settings

Torque control travel mm 1	Leakage		Control rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col 2	Time at least s 3	Vacuum mm w c 4	Control rod travel mm 5	Vacuum mm w c 6	Control rod travel mm 7	Vacuum mm w c 8	Control rod travel mm 9	Vacuum mm w c 10	Control rod travel mm 11

control rod travel test (cols 4-11)  
- rotational speed 500 rev/min  
adjust breakaway (cols 4-5) by means of shims\*  
cam adjustment (B 8-9 - C 7-8) by means of shims\*\*

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F)			Fuel delivery characteristics			Idle (stop)** Idle (imbalance)		Control rod travel from full-load to idle mm cm / 1000 strokes 8
rev/min 1	Vacuum mm wat col 2	cm / 1000 strokes 3	rev/min 4	Vacuum mm wat col 5	cm / 1000 strokes 6	rev/min 7	Vacuum mm wat col 8	

F20 Checking values in brackets

**\*\* Setting the idle speed stop**

At  $n = 500 \text{ min}^{-1}$  and with the governor stop cam switched off, bring the control rod into full-load position by increasing the water column to 430 - 435 mm (maintain exactly) and measure the control-rod travel reached. Increase the water column further until the control rod has adjusted itself to 3 mm less control-rod travel than when measured in full-load position at a water column of 430 - 435 mm. In this position slowly push the stop cam through to its final position and at the same time observe the control rod.

If the spring retainer is correctly set, the control rod should adjust itself to a control-rod travel of  $2 \pm 0.5 \text{ mm}$  (with ..S 14 Z of  $2.0 \pm 0.5 \text{ mm}$ ) less than when measured in full-load position at a water column of 430 - 435 mm. If the setting value is not reached or is exceeded, the position of the spring bolt in the spring retainer must be modified by inserting an appropriate number of washers between the spring-bolt collar and the retaining ring.

Please note

This modification causes the initial tension in the spring retainer to change. This initial tension should be brought up to the prescribed tension of 50 - 90 g again by inserting washers between the springs and the spring bolt base.

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 33,2 d 1

3. Edition

En

**Testoil-ISO 4113**

PE 6 P 120 A.. S 338,

EP/RSUV... 330, 332,

supersedes 10.78

PE 8 P 120 A.. V 10998, 10999

company: MWM, Südd. Bremsen

engine: D/TD/TBD 601..

D/TD/TBD 602..

Complete type designations and instructions page 3.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,2+0.1 - RW 18mm (from BDC)

(+0,15)  
(-0,05)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13	25,8 - 27,8	1,0			
600	9	11,8 - 12,8				
200	9	7,8 - 9,8				

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

300-750 P9/332

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 68	750 775 800	16,0 11,5 6,0	without auxiliary spring			ca. 31	300 50 300	8,0 19 - 21 7,7-8,3	730	0
⑤	780 820 890	9,5 - 11,5 3,0 - 5,0 0,3 - 1,0					350 420	2,7-5,1 0 - 1	330	1,2-1,8

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	3	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm <sup>3</sup> /1000 strokes 2			4	5	6	7	8	9
700	298,0 (14,1 mm RW)								./.

Checking values in brackets

\* 1 mm less control rod travel than col. 2

**B. Governor Settings**

300-900 P10 A330,

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 67	900	16,0	without auxiliary spring			ca. 27	300	8,0	880	0
	930	9,8					50	19 - 21		
	950	5,8					300	7,7-8,3		
⑤	930	8,5-11,6	with auxiliary spring				350	2,6-5,0	330	1,2-1,8
	960	3,0-5,8					440	0 - 1		
	1040	0,3-1,0								

The numbers denote the sequence of the tests

**C. Settings for Fuel Injection Pump with Fitted Governor**

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9	
700	298,0 (14,1 mm RW)	910							
			⑥a						

Checking values in brackets

\* 1 mm less control rod travel than col 2

**Testoil-ISO 4113****B. Governor Settings**

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
⑤										

The numbers denote the sequence of the tests

**C. Settings for Fuel Injection Pump with Fitted Governor**

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ... rev/min						Control rod travel mm	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9	

Checking values in brackets

\* 1 mm less control rod travel than col 2

## INSTRUCTIONS

### 1. Complete type designations and engine designations

PE 6 P 120 A 320 RS338 EP/RSUV 300-900 P 10 A330/1R D/TD/TBD 601-6 + S  
(V10997)

PE 8 P 120 A 500/5 LV10998 --- D/TD/TBD 602 V16+S  
PE 8 P 120 A 520/5 LV10999 EP/RSUV 300-750 P9 A332/1R

### 2. Test details

Test equipment according to W 400/305 En: T-nozzles and tubing 8 x 2 x 1000  
with delivery-valve holder on pump M 16 x 1.5

Basic governor setting: vertical position = 35° control lever deflection.

### 3. Cam sequence and angular cam spacing

PE 6 P .. 338:

1 - 5 - 3 - 6 - 2 - 4

0 - 60 - 120 - 180 - 240 - 300° (standard)

PE 8 P .. 10998:

1 - 6 - 8/2 - 4 - 7 - 3 - 5

0 - 45 - 90 - 135 - 180 - 225 - 315°

PE 8 P .. 10999:

1 - 6 - 2 - 8 - 4 - 7 - 3/5

0 - 45 - 90 - 180 - 225 - 270 - 315°

### 4. The full-load values given represent a basic setting which must be increased according to output and engine speed.

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 FAP 11,0 a

2. Edition

En

**Testoil-ISO 4113**

PE 6 P 110 A 320 RS 405

RQ 250/1100 PA 489

supersedes 10.81

company: FAP-Famos

engine: 2 FP 117 B

2 FP 121 B

2 FP 125 B

2 FP 202 B

188 kW (256 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $\begin{matrix} 2,8-2,9 \\ (2,75-295) \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,1	13,5 - 13,7	0,4(0,8)			
250	8,3-8,5	1,6 - 2,2	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6		Control rod travel mm 8	Test specifications Control rod travel mm 9	rev/min 10		Control rod travel mm 12	
700	15,6-16,4	700	16,0	12,0	1145-1160	250	6,0	100	min. 7, 250 5,9-6,1 435-475=2,0 mm	1100	13,0+0,1
				4,0	1230-1250					700	13,0+0,2
				1400	0 - 1,0						

Torque-control travel  
on flyweight assembly dimension a =

0 mm

Speed regulation: At 1145-1160 min<sup>-1</sup>1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7	Control rod travel
LDA 1100	0,7 bar 135,0 - 137,0 (132,0 - 140,0)			LDA 500	0 bar 98,0 - 100,0 (95,0 - 103,0)	100	170,0-190,0

Checking values in brackets

12.82

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P.. RS 405 mit .. PA 489	0,9	0 0,55 0,34	13,0 - 13,1 11,5 - 11,6 12,5 - 12,6 11,7 - 11,9

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



②

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

40

WPP 001/4 UNI 9,6 a 1

1. Edition

En

PES 6 P 110 A 320 RS 3105-1 RQ 275/1150 PA 653

supersedes

company: Unic

engine: 8220-32

129 kW (176 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

3,2-3,3

(3,15-3,35)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	12,8-13,0	0,4(0,8)			
275	5,5-5,7	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

### B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		rev/min 11		Torque control Control rod travel mm 12	
600	19,2-20,8	600	20,0	11,0	1195-1210	275	5,6	100	min. 7,1	1150	12,0+0,1	600	12,0+0,2		
VH	= max. 46			4,0	1250-1280			275	5,5-5,7						
								345-385	= 2,0						

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: AI

1195-1210 min

1 mm less control  
rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7
LDA 1150	0,7 bar 128,0-130,0 (125,0-133,0)	-		LDA 400	0 bar 81,0-83,0 (78,0-86,0)	100	160,0-180,0

Checking values in brackets

11.82

Testoil-ISO 4113

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3105-1 + RQ..PA 653	0,19		11,5-11,6
		0,70	12,0-12,1
		0	10,1-10,2
		0,14	10,5-10,7

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

WPP001/4STE9,7 b 1  
1. Edition

En

PE6P110A721RS3101

RQ 300/1200 PA 412

supersedes

company

Steyr

engine

WD615.67  
206 kW (280 PS)
**Testoil-ISO 4113**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,0+0,1	16,2-16,4	0,4(0,8)			
300	5,8-6,0	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,0 4,0 1450	1245-1260 1325-1355 0 - 1,0	300	5,9	100 300 405-445	min. 7,5 5,8-6,0 = 2,0	1200 600 985 1075	12,0-12,1 12,4-12,5 12,3-12,4 12,0-12,2

Torque-control travel

on flyweight assembly dimension a =

0,25

mm

Speed regulation: At 1245-1260 min<sup>-1</sup>

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
LDA 1200	0,7 bar 162,0-164,0 (159,0-167,0)		-	LDA 700	0,7 bar 165,0-169,0 (163,0-171,0)	100	240,0-270,0
				LDA 700	0 bar 120,0-122,0 (117,0-125,0)		

Checking values in brackets

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS3101 + RQ..PA412	0,42	0,70 0 0,33	11,5-11,6 12,0-12,1 9,8-9,9 10,2-10,4

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BET 8,8 b

2. Edition

En

PE 6 P 120 A 320 RS 377 RQV 250-1200 PA 425 R

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

supersedes 2182

company RVI

engine MIDS 062 030

158 kW (215 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke 2.8-2.9 mm (from BDC) = RW 9.0 - 12.0 mm  
(2.75-2.95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12.7+0.1	15.2-15.5	0.4 (0.9)			
275	5.4-5.6	1.1-1.7	0.4 (1.2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1240	15.2-17.8	-	-	-	ca. 15	100	min. 7.0	200	0.3-0.6
ca. 56	11.7	1240-1250				280-380	275	5.4-5.6	530	2.9-3.1
	4.0	1320-1350							370	4.3-5.0
	1450	0 - 1.0							1200	8.0

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1200	0.7 bar 152.0-155.0 (149.0-158.0)	1240-1250*	LDA 350	0 bar 51.0-55.0 (48.0-53.0)	100	19.5-21.0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference mm (1)
PE6P..RS377 + RQV..PA 425 R	0,20	0,70 0 0,16	12,3-12,4 12,7-12,8 11,1-11,2 11,5-11,7

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 CHR 11,9 a 1

1. Edition

En

PE 6 P 110 A 720 RS 380

RQV 250-1100 PA 503

supersedes \_

company: Chrysler

engine: BS36

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,8-2,9}{(2,75-2,95)}$  mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	14,5+0,1	16,6-16,8	0,4 (0,8)			
250	8,5-8,7	2,4-3,0	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 16	100	min. 10,0	200	0,5-0,8
ca. 66	13,5 4,0 1400	1140-1150 1260-1290 0-1,0				350-465	250 425-485 = 2,0	8,5-8,7	500	4,0-4,2
									800	5,5-5,7
									1100	7,9

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 166,0-168,0 (163,0-171,0)	1140-1150*	LDA 1100	0 bar 127,0-131,0 (124,0-134,0)	100	19,5-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS380 + ..PA503	0,50		14,0 - 14,1
		0,70	14,5 - 14,6
		0	12,6 - 12,7
		0,36	12,9 - 13,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



①

# Test Specifications

## Fuel Injection Pumps and Governors

 ① WPP 001/4 MAN 11,1 q 8  
1. Edition

En

PES 6 P 120 A 720 LS 388 RQV 250-1100 PA 508

 Values apply to  
engine nozzle-and-holder assemblies 1 688 901 019  
and engine fuel-injection tubing 1 680 750 067

 supersedes  
company: MAN  
D 2566 MKF  
engine: 235 kW (320 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

 Port closing at prestroke  $3,0-3,1$  mm (from BDC) 7yl. 6 - RW 9,0-12,0 mm  
(2,95-3,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1+0,1	21,7-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca.15	100 250 400-460 = 2,0	min.7,9 6,3-6,5	200 500 800 1100	0,6-0,8 4,3-4,5 5,9-6,1 8,5
ca.64	10,3 4,0 1400	1140-1150 1225-1255 0 - 1,0				3a				

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 750	1,0 bar 217,0-220,0 (214,0-223,0)	1140-1150*	LDA 500	0,34 bar 145,0-150,0 (142,0-153,0)	100	205,0-225,0	1100 750 900 1000	11,3+0,1 13,1+0,1 12,6+0,1 11,8+0,2
LDA 1100	1,0 bar 180,0-185,0 (177,0-188,0)		LDA 500	0 bar 101,0-104,0 (98,0-107,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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G11

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 388 + RQV.. PA 508	0,34	1,0 0 0,61	10,9-11,0 13,1-13,2 9,4-9,5 12,5-12,9

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

# Test Specifications

## Fuel Injection Pumps ① and Governors

WPP001/4MAN11,1 q 9

1. Edition

En

PES6P120A720LS388

RQV 250-1050 PA 508

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

supersedes

company MAN

engine D2566 MK/319

235 kW (320 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prastroke  $3,0-3,1$  mm (from BDC) Zyl. 6 - RW 9,0 - 12,0 mm  
 $(2,95-3,15)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1+0,1	21,7-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 11	100	min. 7,1	200	
ca. 63	10,3 4,0 1300	1090-1100 1175-1205 0 - 1,0					250	6,3-6,5	480	
							385-445 = 2,0		770	
									1050	

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 750	1,0 bar 217,0-220,0 (214,0-223,0)	1090-1100*	LDA 500	0,34 bar 145,0-150,0 (142,0-153,0)	100	205,0-225,0	1050	11,3+0,1
LDA 1050	1,0 bar 180,0-185,0 (177,0-188,0)		LDA 500	0 bar 101,0-104,0 (98,0-107,0)			750	13,1+0,1
							810	12,6+0,2
							950	11,6+0,3

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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Testoil-ISO 4113

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..LS388 +RQV..PA508	0,34	1,0 0 0,61	10,9-11,0 13,1-13,2 9,4- 9,5 12,5-12,9

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 q 2

1. Edition

En

PE 6 P 110 A 320 RS 3108 Z

RQV 250-1100 PA 649

supersedes

company Volvo

engine: THD 100 EB

160 kW (218 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke

3,0-3,1  
(2,95-3,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,5+0,1	12,1-12,3	0,4 (0,8)			2,5 <sup>+</sup> 0,1
250	5,0-5,2	3,2-3,6	0,3 (0,6)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca. 10	100 250 345-405=2,0	min. 6,7 5,0-5,2	200 500 660 815 1040 1100	0,7-0,9 4,2-4,8 6,4-6,6 7,3
ca. 56	9,5 4,0 1350	1140-1150 1205-1235 0-1,0								

Torque control travel a = \_ mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min	cm³/1000 strokes	rev/min ④a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,75 bar 121,0-123,0 (118,0-126,0)	1140-1150*	LDA 700	0 bar 105,0-107,0 (102,0-110,0)	100	160,0-190,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3108 Z + RQV..PA 649	0,25	0,75 0 0,22	10,3-10,4 10,5-10,6 9,6-9,8 10,0-10,2

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

# Test Specifications

## Fuel Injection Pumps ①

### and Governors

WPP 001/4 CHR 11,9 a  
1. Edition

En

PE 6 P 110 A 720 RS 380

RQV 250-1100 PA 434 R

supersedes  
company: Chrysler  
engine: BSS36

**Testoil-ISO 4113**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,8-2,9}{(2,75-2,95)}$  mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	15,5+0,1	18,6-18,8	0,4 (0,8)			
250	8,5-8,7	2,4-3,0	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 16	100	min. 10,0	200	0,5-0,7
ca. 66	14,5 4,0 1400	1140-1150 1270-1320 0-1,0				350-465	250 425-485 = 2,0	8,5-8,7	500	4,0-4,2
						③a			800	5,5-5,7
									1100	7,9

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,9 bar 186,0-188,0 (183,0-191,0)	1140-1150*	LDA 1100	0 bar 134,0-138,0 (131,0-141,0)	100	19,5-21,0	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS380 + ..PA434	0,68		15,0 - 15,1
		0,90	15,5 - 15,6
		0	13,2 - 13,3
		0,48	13,7 - 13,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ① and Governors

WFP 001/4 VOL 10,0 q 1

1. Edition

En

PE 6 P 110 A 320 RS 3108 X

RQV 250-1100 PA 649

supersedes

company Volvo

engine: THD 100 ED

203 kW (276 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,0-3,1}{(2,95-3,15)}$  mm (from BDC) = RW 9,0-12,0

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,1+0,1	15,8-16,0	0,4 (0,8)			
250	5,0-5,2	3,2-3,6	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca. 10	100	min. 6,7	200	0,7-0,9
ca. 65	11,1 4,0 1350	1140-1150 1205-1235 0-1,0					250	5,0-5,2	500	4,2-4,8
							340-405 = 2,0		660	6,4-6,6
									bis	
									1040	
									1100	7,3

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,75 bar 158,0-160,0 (155,0-163,0)	1140-1150*	LDA 700	0 bar 105,0-107,0 (102,0-110,0)	100	160,0-190,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

## D. Adjustment Test for Manifold Pressure Compensator

Test at  $n =$  500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS3108X + .. PA649	0,45		11,7 - 11,8
		0,75	12,1 - 12,2
		0	9,3 - 9,4
		0,22	10,2 - 10,4

### Notes

(1) when  $n =$  rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

VE 4/10 F 2125 R 62-2 0 460 404 018  
VE 4/10 F 2125 R 62-4 0 460 404 022

supersedes  
company Peugeot  
engine: XD 2 S

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/.

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	5,0- 5,4 mm	0,67	
1.2 Supply pump pressure	1400	5,2- 5,8 bar (kgf/cm <sup>2</sup> )	0,67	
1.3 Full-load delivery without charge-air pressure	500	33,5-34,5 cm <sup>3</sup> /1000 strokes	0	
Full-load delivery with charge-air pressure	1250	48,7-49,7 cm <sup>3</sup> /1000 strokes	0,67	3,0
1.4 Idle speed regulation	425	8,0-12,0 cm <sup>3</sup> /1000 strokes	0	2,5
1.5 Start	100	min. 50,0 cm <sup>3</sup> /1000 strokes	0	
1.6 Full-load speed regulation	2425	17,0-23,0 cm <sup>3</sup> /1000 strokes	0,67	
1.7 Load-dependent start of delivery	1400	-	0,67	

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	750	1400	2000
LDA=0,67bar	mm	1,4-2,2(1,1-2,5)	(4,5-5,9)	7,8-8,6(7,5-8,9)
2.2 Supply pump	n = rev/min	400		2000
LDA=0,67bar	bar (kgf/cm <sup>2</sup> )	2,1-2,7		7,1-7,7
Overflow delivery	n = rev/min	500		2125
	cm <sup>3</sup> /10 s	55-138(40-153)		55-138(40-153)

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2550	5,0-11,0 (4,0-12,0)	0,67
	2425	(16,0-24,0)	0,67
	2000	41,8-44,2 (40,7-45,3)	0,67
	1250	(46,9-51,5)	0,67
	* 750	39,5-40,5 (37,7-42,3)	0,25
	500	(31,0-37,0)	0
switch-off	2075	0	
Idle stop	425 460-590	0 (6,0-14,0)	
End stop	300 420	min. 50 max. 40	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	Maß K 1
KF	5,7-5,9
MS	0,9-1,1
SVS	max. 4,5
XX	20,2-22,2
XL	9,5-12,8

Observations  
\* Manifold-pressure  
compensator stroke  
= 3,5 mm.  
Correction at the  
adjusting nut. (46)

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 4,5a

1. Edition

En

PES 4 MW 100/320 RS 1102 RQV 300-1150 MW 39-1

0403 444 103

supersedes

company Volvo-BM

engine: TD45

70 KW (95 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $2,80-2,90$   
( $2,75-2,95$ ) mm (from BDC) RW 9 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	$10,3^{+0,1}$	7,4 - 7,6	0,35(0,6)			
300	6,5-6,6	1,3 - 1,7	0,35(0,55)			
1000	$10,3^{+0,1}$	-	0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150 1400	15,2-17,8 0 - 1,0				ca. 11	300 100	5,6-5,7 min.7,3		
ca. 46	10,0 4,0	1190-1200 1230-1260				320-520 (3a)				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	74,0 - 76,0 (72,0 - 78,0)	1190-1200*	1000	81,0 - 85,0 (79,0 - 87,0)	100	min. 140,0		
						100-220(80-250)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

# Test Specifications

## Fuel Injection Pumps and Governors

WPP 001/4 VOL 4,5b

1. Edition

En

PES 4 MW 100/320 RS 1102 RQV 300-1100 MW 39

o 403 444 101

supersedes

company: Volvo-BM

engine: TD45

85 KW (116 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke  $2,80 - 2,90$  mm (from BDC) RW  $9,0 - 12,0$  mm  
( $2,75 - 2,95$ )

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,0+0,1	9,5 - 9,7	0,35(0,6)			
300	5,6-5,7	0,95- 1,35	0,35(0,55)			
1000	11,0+0,1	9,4 - 9,8	0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100 1350	15,2 - 17,8 0 - 1,0				ca. 11	300 100	5,6-5,7 min.7,2		
ca. 46	10,0 4,0	1140-1150 1190-1220				3a	380-440	= 2,0		

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	95,0-97,0 (93,0-99,0)	1140-1150*	1000	94,0- 98,0 (92,0-100,0)	100	min. 140,0		
						100-220 (80-250)		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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①

# Test Specifications

## Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 21,2 a

1. Edition

En

PE 8 P 130 A 520/4 RS 3085 RQV 400-750 PA 618-1

supersedes

company Baudouin

engine 8 P 15

467 kW (635 PS)

1-2-4-5-6-3-7-8 je 45 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	8,5-8,6	21,0-21,4	0,5(0,9)			
400	3,9-4,1	2,5 - 3,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	830	15,2-17,8	-	-	-	ca. 16	100	min. 5,6	350	0 - 0,2
ca.48	7,5 4,0 900	750-755 775-785 0 - 1,0				355-455	400 775-785=2,0	3,9-4,1	455 bis 640 700 750	2,0 2,0-3,8 5,1

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery Idle switching point (6)		Torque-control (5) (Range) Control rod travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	210,0-214,0 (207,0-217,0)	750-755*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 VW 1,6 n

2. Edition

En

VE 4/9 F 2500 R 16-5  
R 16-5 Psupersedes 4.82  
company: VW  
engine 1,6 L0 460 494 032  
0 460 494 033

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting --- mm

see VDT-W-460/

**Testoil-ISO 4113**

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	1500	4,6-5,0 mm		
1 2 Supply pump pressure	1500	4,5-5,1 bar (kgf/cm <sup>2</sup> )		
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	--	-- cm <sup>3</sup> /1000 strokes		
1 4 Idle speed regulation	415	7,0-11,0 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1 5 Start	100	min. 38,0 cm <sup>3</sup> /1000 strokes		
1 6 Full-load speed regulation	2450	14,0-20,0 cm <sup>3</sup> /1000 strokes		
1 7 Load-dependent start of delivery	--	--		

## 2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min mm	1000 2,4-3,2 (2,1-3,5)	1500 (4,1-5,5)	2100 7,0-7,8 (6,7-8,1)
2 2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 1,7-2,3		2250 6,3-6,9
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600 55-125 (40-140)		55-125 (40-140)

## 2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2540 2450 2250 1500 600	5,5-12,5 (5,0-13,0) (13,0-21,0) 28,8-30,8 (27,5-32,1) (31,2-35,8) 21,5-24,5 (20,0-26,0)	
switch-off elect.	400	bei 2,5 V 0	
Idle stop	1200 600 415	max. 4,0 max. 6,0 (5,0-13,0)	
End stop	400 500	min. 18,0 max. 23,5	
2 4 Solenoid	max. cut-in voltage xxx min. 10 V	rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 4,8
* FH	1,8-2,4
XK	18,6-20,6
A	
XL	9,1-12,8

## Observations

\*operating  
stroke (KSB)
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# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 VWV 1,6 a

3. Edition

En

VE 4/9 F 2400 R 66-3  
R 66-7supersedes 6.82  
company: VW  
engine:0 460 494 052  
0 460 494 075

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	1500	2,9-3,3 mm		
1 2 Supply pump pressure	1500	4,9-5,5 bar (kgf/cm <sup>2</sup> )		
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
1 4 Idle speed regulation	475	6,0-10,0 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1 5 Start	100	min. 38,0 cm <sup>3</sup> /1000 strokes		
1 6 Full-load speed regulation	2600	11,0-17,0 cm <sup>3</sup> /1000 strokes		
1 7 Load-dependent start of delivery	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9 (5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 2,1-2,7		2400 7,0-7,6
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)		2400 55-138 (40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2700	2,5- 9,5 ( 2,0-10,0)	
	2600	(10,0-18,0)	
	2400	27,5-29,5 (26,2-30,8)	
	1500	(31,2-35,8)	
	600	21,5-24,5 (20,0-26,0)	
switch-off			
elect.	400	0	
Idle stop	1200	max. 5,0	
	650	max. 6,0	
	475	(4,0-12,0)	
End stop	400	min. 18,0	
	500	max. 23,5	
2.4 Solenoid	max. cut-in voltage xxx min. 10,0 V rated voltage 12V.		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 2,5
* FH	1,8-2,4
XK <sup>A</sup>	18,4-20,4
XL <sup>B</sup>	9,1-12,9

## Observations

\*operating  
stroke (KSB)



⑥

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

46

WPP 001/4 VWV 1,6 W

1. Edition

En

VE 4/9 F 2400 R 66-4

0 460 494 073

supersedes \_

company VWV

engine Audi 4000 USA

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/

**Testoil-ISO 4113**

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	2,9- 3,3 mm		
1.2 Supply pump pressure	1500	4,9- 5,5 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery without charge-air pressure	1500	30,0-31,0 cm <sup>3</sup> /1000 strokes		2,5(3-0)
Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
1.4 Idle speed regulation	475	7,0-11,0 cm <sup>3</sup> /1000 strokes		2,5(3,0)
1.5 Start	100	min. 38,0 cm <sup>3</sup> /1000 strokes		
1.6 Full-load speed regulation	2600	11,0-17,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent start of delivery	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9(5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 2,1-2,7		2400 7,0-7,6
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138(40-153)		2400 55-138(40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	2700 2600 2400 1500 600	2,5- 9,5 ( 2,0-10,0) (10,0-18,0) 26,0-28,0 (24,7-29,3) (28,2-32,8) 17,5-20,5 (16,0-22,0)	
switch-off elect.	400	0	
Idle stop	475 650 1200	( 5,0-13,0)	
End stop	400 500	max. 6,0 max. 4,0 min. 13,5 max. 19,5	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 2,5
* FH	1,8-2,4
KK	18,4-20,4
KL	10,4-12,-

## Observations

\*operating  
stroke (KSB)

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11.82

H3

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

46

WPP 001/4 VWV 1,6 c

3. Edition

En

VE 4/9 F 2400 R 66-13

0 460 494 084

supersedes 5.82

company: VWV

engine: Passat Autom.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/

**Testoil-ISO 4113**

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	1500	2,9- 3,3 mm		
1 2 Supply pump pressure	1500	4,9- 5,5 bar (kgf/cm <sup>2</sup> )		
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0 cm <sup>3</sup> /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	-- cm <sup>3</sup> /1000 strokes		
1 4 Idle speed regulation	450	6,0-10,0 cm <sup>3</sup> /1000 strokes		2,5(3,0)
1 5 Start	100	min. 38,0 cm <sup>3</sup> /1000 strokes		
1 6 Full-load speed regulation	2600	11,0-17,0 cm <sup>3</sup> /1000 strokes		
1 7 Load-dependent start of delivery	--	--		

## 2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9(5,8-7,2)
2 2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 2,1-2,7		2400 7,0-7,6
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138(40-153)		2400 55-138(40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )	Designation for assembly and adjustment mm
End stop	2700 2600 2400 1500 600	2,5- 9,5 ( 2,0-10,0) (10,0-18,0) 27,5-29,5 (26,2-30,8) (31,2-35,8) 21,5-24,5 (20,0-26,0)		K KF MS SVS * FH
switch-off mech. elektr.	2400 400	0 0		XK XL
Idle stop	1200 650 475	max. 7,0 max. 5,0 (4,0-12,0)		Observations
End stop	400 500	min. 18,0 max. 23,5		*operating stroke (KSB)
2.4 Solenoid	max. cut-in voltage XXX min. 10 V test voltage XXX rated voltage 12V.			

## 3. Dimensions

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H4

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 VWV 1,6 K

2. Edition

En

VE 4/9 F 2250 R 79  
R 79 P0 460 494 064  
0 460 494 065

Overflow temperature 45° C

supersedes 6.82

company VWV

engine 086-T-1,6

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

-- mm

see VDT-W-460V

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,3-3,7 mm	0,75	
1.2 Supply pump pressure	1500	5,5-6,1 bar (kgf/cm <sup>2</sup> )	0,75	
1.3 Full-load delivery without charge-air pressure	600	22,5-23,5 cm <sup>3</sup> /1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1500	42,5-43,5 cm <sup>3</sup> /1000 strokes	0,75	
1.4 Idle speed regulation	475	7,0-11,0 cm <sup>3</sup> /1000 strokes	0	2,5 (3,0)
1.5 Start	100	min. 38,0 cm <sup>3</sup> /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0-15,0 cm <sup>3</sup> /1000 strokes	0,75	
1.7 Load-dependent start of delivery	--	--		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1500	2250
LDA=0,75 bar	mm	1,3-2,1 (1,0-2,4)	(2,8-4,2)	6,0-6,8 (5,7-7,1)
2.2 Supply pump	n = rev/min	600		2250
LDA=0,75 bar	bar (kgf/cm <sup>2</sup> )	3,3-3,9		7,4-8,0
Overflow delivery	n = rev/min	600		2250
	cm <sup>3</sup> /10 s	55-125 (40-140)		55-125 (40-140)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2730-2870	0	0,75
	2525	( 8,0-16,0)	0,75
	2250	38,0-40,0 (36,7-41,3)	0,75
	1500	(40,7-45,3)	0,75
	* 1000	32,5-33,5 (30,0-36,0)	0,3
	600	(20,0-26,0)	0
switch-off elect.	400	0	
Idle stop	1200	max. 5,0	
	475	(5,0-13,0)	
End stop	400	min. 21	
	500	max. 29	
2.4 Solenoid	max. cut-in voltage	xxx min. 10,0 V	
	rated voltage	12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,2-1,4
SVS	4,4
XK	18,4-20,4
XL	10,0-13,6

## Observations

\* Manifold-pressure compensator stroke = 4,0 mm.  
Correction at the adjusting nut. (46)

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⑥

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

46

WPP 001/4 VWV 1,6L 1

2. Edition

En

VE 4/9 F 2250 R 79-1  
R 79-1 P

supersedes 6.82  
company VWV  
engine 086 T-1,6-Autom.

0 460 494 100  
0 460 494 101

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

--

mm

see VDT-W 460/

**Testoil-ISO 4113**

1. Settings	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,3 - 3,7 mm	0,75	
1.2 Supply pump pressure	1500	5,5 - 6,1 bar (kgf/cm <sup>2</sup> )	0,75	
1.3 Full-load delivery without charge-air pressure	600	22,5-23,5 cm <sup>3</sup> /1000 strokes	0	2,5(3,0)
Full-load delivery with charge-air pressure	1500	42,5-43,5 cm <sup>3</sup> /1000 strokes	0,75	
1.4 Idle speed regulation	450	7,0-11,0 cm <sup>3</sup> /1000 strokes	0	2,5(3,0)
1.5 Start	100	min. 38,0 cm <sup>3</sup> /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0-15,0 cm <sup>3</sup> /1000 strokes	0,75	
1.7 Load-dependent start of delivery	--	--		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1500	2250
LDA=0,75 bar	mm	1,3-2,1 (1,0-2,4)	(2,8-4,2)	6,0-6,8 (5,7-7,1)
2.2 Supply pump	n = rev/min	1600		2250
LDA=0,75 bar	bar (kgf/cm <sup>2</sup> )	3,3-3,9		7,4-8,0
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600		2250
		55-125 (40-140)		55-125 (40-140)

## 2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	2730-2870	0	0,75
	2525	(8,0-16,0)	0,75
	2250	38,0-40,0 (36,7-41,3)	0,75
	1500	(40,7-45,3)	0,75
	+1000	32,5-33,5 (30,0-36,0)	0,3
	600	(20,0-26,0)	0
switch off mech.	2250	0	
elektr.	400	0	
Idle stop	1200	max. 10,0	0
	450	(5,0-13,0)	
End stop	400	min. 21	
	500	max. 29	
2.4 Solenoid	max. cut-in voltage test voltage	xxx min. 10,0 V rated voltage 12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,2-1,4
SVS	max. 4,4
A XK	18,4-20,4
B XL	10,4-12,7

Observations  
+ Manifold-pressure  
compensator stroke  
= 4,0 mm.  
Correction at the  
adjusting nut.(46)

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H6

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 VWV 1,6 i

3. Edition

En

VE 4/9 F 2250 R 78-1 (P)

0 460 404 098; 099

supersedes 6.82

company VWV

engine 086T-1,6-Autom.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

--- mm

see VDT-W-460V

**Testoil-ISO 4113**

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,8-4,2 mm	0,75	
1.2 Supply pump pressure	1500	5,6-6,1 bar (kgf/cm <sup>2</sup> )	0,75	
1.3 Full-load delivery without charge-air pressure	600	23,5-24,5 cm <sup>3</sup> /1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1500	43,5-44,5 cm <sup>3</sup> /1000 strokes	0,75	
1.4 Idle speed regulation	450	7,0-11,0 cm <sup>3</sup> /1000 strokes	0	2,5 (3,0)
1.5 Start	100	min. 38,0 cm <sup>3</sup> /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0-15,0 cm <sup>3</sup> /1000 strokes	0,75	
1.7 Load-dependent start of delivery	--	--		

### 2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,75 bar	n = rev/min mm	1000 1,8-2,6 (1,5-2,9)	1500 (3,3-4,7)	2250 6,1-6,9 (5,8-7,2)
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm <sup>2</sup> )	1600 3,3-3,9		2250 7,4-8,0
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600 55-125 (40-140)		2250 55-125 (40-140)

### 2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2730-1870 2525 2250 1500 * 1000 600	0 ( 8,0-16,0) 38,5-40,5 (37,2-41,8) 33,5-34,5 (41,7-46,3) (31,0-37,0) (21,0-27,0)	0,75 0,75 0,75 0,75 0,3 0
mech. <sup>switch-off</sup>	2250	0	
elektr.	400	0	
Idle stop	1200 450	max. 10,0 (5,0-13,0)	0
End stop	400 500	min. 22 max. 30	
2.4 Solenoid	max. cut-in voltage xxx min. 10,0 V rated voltage 12V.		

### 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,2-1,4
SVS	max. 4,4
KK	18,4-20,4
KL	10,4-12,7

#### Observations

\* Manifold-pressure  
compensator stroke  
= 4,0 mm.  
Correction at the  
adjusting nut.(46)

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 VWV 1,6 h

3. Edition

En

VE 4/9 F 2250 R 78

0 460 494 062/063

supersedes 6.82

company: VWV

engine: 086T-1,6

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

--

mm

see VDT-W-460/

**Testoil-ISO 4113**

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	1500	3,8-4,2 mm	0,75	
1 2 Supply pump pressure	1500	5,6-6,1 bar (kgf/cm <sup>2</sup> )	0,75	
1 3 Full-load delivery without charge-air pressure	600	23,5-24,5 cm <sup>3</sup> /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	43,5-44,5 cm <sup>3</sup> /1000 strokes	0,75	2,5 (3,0)
1 4 Idle speed regulation	475	7,0-11,0 cm <sup>3</sup> /1000 strokes	0	2,5 (3,0)
1 5 Start	100	min. 38,0 cm <sup>3</sup> /1000 strokes	0	
1 6 Full-load speed regulation	2525	9,0-15,0 cm <sup>3</sup> /1000 strokes	0,75	
1 7 Load-dependent start of delivery	--	--		

## 2. Test Specifications

checking values in brackets ( )

2 1 Timing device LDA=0,75 bar	n = rev/min mm	1000 1,8-2,6 (1,5-2,9)	1500 (3,3-4,7)	2250 6,1-6,9 (5,8-7,2)
2 2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm <sup>2</sup> )	600 3,3-3,9		2250 7,4-8,0
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600 55-125 (40-140)		2250 55-125 (40-140)

## 2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )	3. Dimensions for assembly and adjustment mm
End stop	2730-1870 2525 2250 1500 * 1000 600	0 38,5-40,5 ( 8,0-16,0) 38,5-40,5 (37,2-41,8) (41,7-46,3) 33,5-34,5 (31,0-37,0) (21,0-27,0)	0,75 0,75 0,75 0,75 0,3 0	K 3,2-3,4 KF 5,7-5,9 MS 1,2-1,4 SVS 4,4
switch-off mech. elektr.	2250 400	0 0		A XK 18,4-20,4 B XL 10,0-13,6
Idle stop	1200 475	max. 5,0 (5,0-13,0)		Observations * Manifold-pressure compensator stroke = 4,0 mm.
End stop	400 500	min. 22,0 max. 30,0		Correction at the adjusting nut.(46)
2.4 Solenoid	max. cut-in voltage xxx min. 10 V XXXXXXXXXXXX rated voltage 12V.			

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⑥

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

46

WPP 001/4 PEU 2,3 b

1. Edition

En

VE 4/10 F 2075 R 62  
R 62-3

supersedes  
company: Peugeot  
engine: XD 2 S

0 460 404 011  
0 460 404 021

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/.

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	5,0- 5,4 mm	0,67	
1.2 Supply pump pressure	1400	5,2- 5,8 bar (kgf/cm <sup>2</sup> )	0,67	
1.3 Full-load delivery without charge-air pressure	500	33,5-34,5 cm <sup>3</sup> /1000 strokes	0	
Full-load delivery with charge-air pressure	1250	48,7-49,7 cm <sup>3</sup> /1000 strokes	0,67	3,0
1.4 Idle speed regulation	375	12,0-16,0 cm <sup>3</sup> /1000 strokes	0	2,5
1.5 Start	100	min. 50,0 cm <sup>3</sup> /1000 strokes	0	
1.6 Full-load speed regulation	2400	13,0-19,0 cm <sup>3</sup> /1000 strokes	0,67	
1.7 Load-dependent start of delivery	1400	-	0,67	

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	750	1400	2000
LDA=0,67 bar	mm	1,4-2,2(1,1-2,5)	(4,5-5,9)	7,8-8,6(7,5-8,9)
2.2 Supply pump	n = rev/min	400		2000
LDA=0,67 bar	bar (kgf/cm <sup>2</sup> )	2,1-2,7		7,1-7,7
Overflow delivery	n = rev/min	500		2075
	cm <sup>3</sup> /10 s	55-138(40-153)		55-138(40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2500	3,0- 9,0 ( 2,0-10,0)	0,67
	2400	(12,0-20,0)	0,67
	2000	41,8-44,2 (40,7-45,3)	0,67
	1250	(46,9-51,5)	0,67
	* 750	39,5-40,5 (37,7-42,3)	0,25
	500	(31,0-37,0)	0
switch-off	2075	0	
Idle stop	375	(10,0-18,0)	
	420-480	0	
	1250	max. 2,0	
End stop	300	min. 50	
	420	max. 40	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	Maß K 1
KF	5,7-5,9
MS	0,9-1,1
SVS	max. 4,6
KK	20,2-22,2
KL	9,5-12,8

## Observations

\* Manifold-pressure  
compensator stroke  
= 3,5 mm.  
Correction at the  
adjusting nut. (46)

2.4 Solenoid	max. cut-in voltage xxx min. 10 V
	test voltage xxx rated voltage 12V.

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11.82

H9

H9

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

VE 5/10 F 2250 L 80-1

0 460 405 023

supersedes 6.82

company: Audi 100

engine: 153 T-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm  $\pm$  0,02 (0,04) mm

see VDT-W-460/.

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,1 - 3,5 mm	0,75	
1.2 Supply pump pressure	1500	5,5 - 6,1 bar (kgf/cm <sup>2</sup> )	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 - 22,5 cm <sup>3</sup> /1000 strokes	0	2,5(3,0)
Full-load delivery with charge-air pressure	1500	43,5 - 44,5 cm <sup>3</sup> /1000 strokes	0,75	
1.4 Idle speed regulation	375	6,0 - 10,0 cm <sup>3</sup> /1000 strokes	0	2,5(3,0)
1.5 Start	100	min. 50,0 cm <sup>3</sup> /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0 cm <sup>3</sup> /1000 strokes	0,75	
1.7 Load-dependent start of delivery	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	850	1500	2250
LDA=0,75 bar	mm	1,1 - 1,9 (0,8 - 2,2)	(2,6 - 4,0)	5,4-6,2 (5,1-6,5)
2.2 Supply pump	n = rev/min	500		2250
LDA=0,75 bar	bar (kgf/cm <sup>2</sup> )	3,2 - 3,8		7,3 - 7,9
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55 - 138 (40 - 153)		2250 55 - 138 (40 - 153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2680-2820	0	0,75
	2525	(8,0 - 16,0)	0,75
	2250	37,0-39,0 (35,7- 40,4)	0,75
	1500	(41,7- 46,3)	0,75
	* 850	32,5-33,5 (30,0- 36,0)	0,30
	500	(19,0- 25,0)	0
switch-off	2250	0	
elect.	400	0	
Idle stop	375	(4,0 - 12,0)	
	450	max. 2,5	
End stop	400	min. 18	
	500	max. 25	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,7-5,9
MS	1,7-1,9
SVS	max. 4,2
*K	18,5 - 20,5
*L	10,3 - 13,2

## Observations

\* Manifold-pressure compensator stroke = 3,6 mm.  
Correction at the adjusting nut (46)

## 2.4 Solenoid

max. cut-in voltage  
test voltage



⑥

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

46

WPP 001/4 VWV 2,0 g

1. Edition

En

VE 5/10 F 2250 L 80

0 460 405 017

supersedes -

company: Audi 100 T

engine: 153 T-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm  $\pm 0,02$  (0,04) mm

see VDT-W-460/

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,1 - 3,5 mm	0,75	
1.2 Supply pump pressure	1500	5,5 - 6,1 bar (kgf/cm <sup>2</sup> )	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 - 22,5 cm <sup>3</sup> /1000 strokes	0	2,5 (3,0)
Full-load delivery with charge-air pressure	1500	43,5 - 44,5 cm <sup>3</sup> /1000 strokes	0,75	
1.4 Idle speed regulation	375	6,0 - 10,0 cm <sup>3</sup> /1000 strokes	0	2,5 (3,0)
1.5 Start	100	min. 50,0 cm <sup>3</sup> /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0 cm <sup>3</sup> /1000 strokes	0,75	
1.7 Load-dependent start of delivery	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	850	1500	2250
LDA=0,75 bar	mm	1,1-1,9 (0,8-2,2)	(2,6-4,0)	5,4 - 6,2 (5,1-6,5)
2.2 Supply pump	n = rev/min	500		2250
LDA=0,75 bar	bar (kgf/cm <sup>2</sup> )	3,2 - 3,8		7,3 - 7,9
Overflow delivery	n = rev/min	500		2250
	cm <sup>3</sup> /10 s	55 - 138 (40 - 153)		55 - 138 (40 - 153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2680-2820	0	0,75
	2525	(8,0-16,0)	0,75
	2250	37,0-39,0 (35,7-40,3)	0,75
	1500	(41,7-46,3)	0,75
	* 850	32,5-33,5 (30,0-36,0)	0,30
	500	(19,0-25,0)	0
switch-off elect.	400	0	
Idle stop	375	(4,0-12,0)	
	450	max. 2,5	
End stop	400	min. 18	
	500	max. 25	
2.4 Solenoid	max. cut-in voltage test voltage		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,7 - 5,9
MS	1,7 - 1,9
SVS	max. 4,2
XX	18,5-20,5
XL	10,3-13,2

## Observations

\* Manifold-pressure compensator stroke = 3,6 mm.  
Correction at the adjusting nut (46)

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11.82

H11

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP001/4 VW 2,0 e1

1. Edition

En

VE 5/10 F 2250 L 81

0 460 405 019

supersedes -

company: Audi 100 T

engine: 153 T-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm  $\pm$  0,02 (0,04) mm

see VDT-W-460/...

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,1 - 3,5 mm	0,75	
1.2 Supply pump pressure	1500	5,5 - 6,1 bar (kgf/cm <sup>2</sup> )	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 - 22,5 cm <sup>3</sup> /1000 strokes	0	2,5(3,0)
Full-load delivery with charge-air pressure	1500	43,5 - 44,5 cm <sup>3</sup> /1000 strokes	0,75	
1.4 Idle speed regulation	375	6,0 - 10,0 cm <sup>3</sup> /1000 strokes	0	2,5(3,0)
1.5 Start	100	min. 50,0 cm <sup>3</sup> /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0 cm <sup>3</sup> /1000 strokes	0,75	
1.7 Load-dependent start of delivery	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	850	1500	2250
LDA=0,75bar	mm	1,1-1,9(0,8-2,2)	(2,6-4,0)	5,4-6,2 (5,1-6,5)
2.2 Supply pump	n = rev/min	500	2250	
LDA=0,75 bar	bar (kgf/cm <sup>2</sup> )	3,2 - 3,8	7,3 - 7,9	
Overflow delivery	n = rev/min	500	2250	
	cm <sup>3</sup> /10 s	55 - 138 (40 - 153)	55 - 138 (40 - 153)	

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press bar (kgf/cm <sup>2</sup> )
End stop	2680-2820	0	0,75
	2525	(8,0 - 16,0)	0,75
	2250	37,0-39,0(35,7- 40,3)	0,75
	1500	(41,7- 46,3)	0,75
* 850		32,5-33,5(30,0-36,0)	0,30
500		(19,0- 25,0)	0
switch-off elect.	400	0	
Idle stop	375	(4,0-12,0)	
	450	max. 2,5	
End stop	400	min. 18	
	500	max. 25	
2.4 Solenoid	max. cut-in voltage test voltage		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,7 - 5,9
MS	1,7 - 1,9
SVS	max. 4,2
KK	18,5-20,5
KL	10,3-13,2

## Observations

Manifold-pressure  
compensator stroke  
= 3,6 mm.  
Correction at the  
adjusting nut (46)

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

VE 5/10 F 2250 L 81-1  
0 460 405 025

supersedes: 6.82  
company: Audi 100 T  
engine: 153 T-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm  $\pm$  0,02 (0,04) mm

see VDT-W-460/...

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,1 - 3,5 mm	0,75	2,5 (3,0)
1.2 Supply pump pressure	1500	5,5 - 6,1 bar (kgf/cm <sup>2</sup> )	0,75	
1.3 Full-load delivery without charge-air pressure	500	21,5 - 22,5 cm <sup>3</sup> /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	43,5 - 44,5 cm <sup>3</sup> /1000 strokes	0,75	
1.4 Idle speed regulation	375	6,0 - 10,0 cm <sup>3</sup> /1000 strokes	0	
1.5 Start	100	min. 50,0 cm <sup>3</sup> /1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0 cm <sup>3</sup> /1000 strokes	0,75	
1.7 Load-dependent start of delivery	-	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	850	1500	2250
LDA=0,75 bar	mm	1,1 - 1,9 (0,8-2,2) (2,6-4,0) 5,4 - 6,2 (5,1 - 6,5)		
2.2 Supply pump	n = rev/min	500	2250	
LDA=0,75 bar	bar (kgf/cm <sup>2</sup> )	3,2-3,8	7,3-7,9	
Overflow delivery	n = rev/min	500	2250	
	cm <sup>3</sup> /10 s	55-138 (40-153)	55-138 (40-153)	

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2680-2820	0	0,75
	2525	(8,0-16,0)	0,75
	2250	37,0-39,0 (35,7-40,3)	0,75
	1500	(41,7-46,3)	0,75
	* 850	32,5-33,5 (30,0-36,0)	0,30
	500	(19,0-25,0)	0
switch off mech.	2250	0	
elektr.	400	0	
Idle stop	375	(4,0-12,0)	
	450	max. 2,5	
End stop	400	min. 18	
	500	max. 25	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,7 - 5,9
MS	1,7 - 1,9
SVS	max. 4,2
XL	18,5-20,5
XL	10,3-13,2

## Observations

\* Manifold-pressure  
compensator stroke  
= 3,6 mm.  
Correction at the  
adjusting nut (46)

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 VWV 1,5a

2. Edition

En

VE 4/9 F 2500 R 16-2  
R 16-2 P

supersedes 4.82

company: VW

engine: EA 086/10

0 460 494 006

0 460 494 007

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

**Testoil-ISO 4113**

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,4-3,8 mm		
1.2 Supply pump pressure	1500	4,0-4,6 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	--	-- cm <sup>3</sup> /1000 strokes		
1.4 Idle speed regulation	415	6,0-10,0 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1.5 Start	100	min. 39,0 cm <sup>3</sup> /1000 strokes		
1.6 Full-load speed regulation	2670	13,5-19,5 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent start of delivery	--	--		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,9 - 4,3)	2000 6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 1,4 - 2,0		2200 5,9-6,5
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-111 (40-126)		2500 55-111 (40-126)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )	3. Dimensions for assembly and adjustment mm
End stop	2950 2820 2670 2500 1500 600	max. 4,0 max. 8,0 (12,5-20,5) 25,7-27,7 (24,4-29,0) (28,1-32,7) 17,9-20,9 (15,4-22,4)		K 3,2-3,4 KF 5,7-5,9 MS 1,3-1,5 SVS max. 3,6 * FH 1,8-2,4 ** 9,0-14,0 A 9,4-12,0 B
switch-off elect.	400	bei 2,5 V 0		
Idle stop	1200 415	max. 3,0 (4,0-12,0)		Observations
End stop	400 500	min. 15,0 max. 20,0		* operating stroke (KSB) ** Two-piece control lever. XK = 18,6-20,6 mm XL = 9,1-12,8 mm
2.4 Solenoid	max. cut-in voltage	xxx min. 10 V rated voltage 12V.		

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# Test Specifications

## Distributor-type

## Fuel-injection Pumps

WPP 001/4 VWV 1,5b

2. Edition

En

VE 4/9 F 2500 R 16-4 (P)

0 460 494 030 (031)

supersedes 4. 82

company: VW

engine: EA 086/10

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

----- mm

see VDT-W-460/.

Testoil-ISO 4113

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,4-3,8 mm		
1.2 Supply pump pressure	1500	4,0-4,6 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	--	-- cm <sup>3</sup> /1000 strokes		
1.4 Idle speed regulation	475	6,0-10,0 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1.5 Start	100	min. 39,0 cm <sup>3</sup> /1000 strokes		
1.6 Full-load speed regulation	2670	13,5-19,5 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent start of delivery	--	--		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,9-4,3)	2200 6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 1,4-2,0		2200 5,9-6,5
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-111 (40-126)		2500 55-111 (40-126)

## 2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2950 2820 2670 2500 1500 600	max. 4,0 max. 8,0 (12,5-20,5) (24,4-29,0) (28,1-32,7) 17,9-20,9 (16,4-22,4)	
switch-off elect.	400	bei 2,5 V 0	
Idle stop	1200 475	max. 3,0 (4,0-12,0)	
End stop	400 500	min. 15,0 max. 20,0	
2.4 Solenoid	max. cut-in voltage	XXXX 10 V	
	rated voltage	12V.	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 3,6
* FH	1,8-2,4
**	9,0-14,0
A	9,4-12,6
B	

## Observations

\* operating stroke  
(KSB)  
\*\*Two-piece control  
lever.  
XK = 18,6-20,6 mm  
XL = 9,1-12,8 mm

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# Test Specifications

## Distributor-type Fuel-injection Pumps

WPP 001/4 VWV 1,5 b1

2. Edition

En

VE 4/9 F 2500 R 16-3  
R 16-3 P

supersedes 4.82

company: VW

engine: EA 086/10

0 460 494 028

0 460 494 029

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/...

**Testoil-ISO 4113**

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,4-3,8 mm		
1.2 Supply pump pressure	1500	4,0-4,6 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9 cm <sup>3</sup> /1000 strokes		
Full-load delivery with charge-air pressure	--	-- cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1.4 Idle speed regulation	475	6,0-10,0 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1.5 Start	100	min. 39,0 cm <sup>3</sup> /1000 strokes		
1.6 Full-load speed regulation	2670	13,5-19,5 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent start of delivery	--	--		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,9-4,3)	2200 6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 1,4-2,0		2200 5,9-6,5
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-111 (40-126)		2500 55-111 (40-126)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2950 2820 2670 2500 1500 600	max. 4,0 max. 8,0 (12,5-20,5) 25,7-27,7 (24,4-29,0) (28,1-32,7) 17,9-20,9 (16,4-22,4)	
switch-off			
elect.	400	bei 2,5 V 0	
Idle stop	1200 475	max. 3,0 (4,0-12,0)	
End stop	400 500	min. 15,0 max. 20,0	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 3,6
* FH	1,8-2,4
**	9,0-14,0
A	9,4-12,6
B	

## Observations

\* operating stroke  
(KSB)  
\*\* Two-piece control  
lever.  
XK = 18,6-20,6 mm  
XL = 9,1-12,8 mm

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# Test Specifications

## Distributor-type Fuel-injection Pumps

WPP 001/4 VWV 1,5 al

2. Edition:

En

VE 4/9 F 2500 R 16  
R 16 P0 460 494 002  
0 460 494 003supersedes 4.82  
company VW  
engine: EA 086/10

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting -- mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,4-3,8 mm		
1.2 Supply pump pressure	1500	4,0-4,6 bar (kgf/cm <sup>2</sup> )		2,5 (3,0)
1.3 Full-load delivery without charge-air pressure	1500	29,9-30,9 cm <sup>3</sup> /1000 strokes		
Full-load delivery with charge-air pressure	--	-- cm <sup>3</sup> /1000 strokes		
1.4 Idle speed regulation	415	6,0-10,0 cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1.5 Start	100	min. 39,0 cm <sup>3</sup> /1000 strokes		
1.6 Full-load speed regulation	2670	13,5-19,5 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent start of delivery	--	--		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,9-4,3)	2000 6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 1,4-2,0		2200 5,9-6,5
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-111 (40-126)		2500 55-111 (40-126)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2950 2820 2670 2500 1500 600	max. 4,0 max. 8,0 (12,5-20,5 25,7-27,7 (24,4-29,0) (28,1-32,7) 17,9-20,9 (15,4-22,4)	
switch-off elect.	400	bei 2,5 V 0	
Idle stop	1200 415	max. 3,0 (4,0-12,0)	
End stop	400 500	min. 15,0 max. 20,0	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,3-15,
SVS	max. 3,6
* FH	1,8-2,4
**	9,0-14,0 9,4-12,0
A	
B	

## Observations

\* operating stroke (KSB)  
 \*\*Two-piece control lever.  
 XK = 18,6-20,6 mm  
 XL = 9,1-12,8 mm

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# Test Specifications

## Distributor-type Fuel-injection Pumps

WPP 001/4 RVI

1. Edition

En

VE 4/12 F 1500 R 51-1

0 460 424 005

supersedes

company RVI-Renault

engine: 720 S

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

-

mm

see VDT-W-460/.

**Testoil-ISO 4113**

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1000	3,3- 3,7 mm	0,8	
1.2 Supply pump pressure	1000	4,7- 5,3 bar (kgf/cm <sup>2</sup> )	0,8	
1.3 Full-load delivery without charge-air pressure	500	63,0-64,0 cm <sup>3</sup> /1000 strokes	0	
Full-load delivery with charge-air pressure	1000	86,5-87,5 cm <sup>3</sup> /1000 strokes	0,8	4,0
1.4 Idle speed regulation	325	14,0-20,0 cm <sup>3</sup> /1000 strokes	0	3,5
1.5 Start	100	min. 100,0 cm <sup>3</sup> /1000 strokes	0	
1.6 Full-load speed regulation	1650	17,0-23,0 cm <sup>3</sup> /1000 strokes	0,8	
1.7 Load-dependent start of delivery				

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,8bar	n = rev/min mm	750 1,3-2,1 (1,0-2,4)	1000 (2,8-4,2)	1500 6,1-6,9 (5,8-7,2)
2.2 Supply pump LDA=0,8bar	n = rev/min bar (kgf/cm <sup>2</sup> )	300 1,7-2,3		1500 6,7-7,3
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)		1500 55-138 (40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	1700 1650 1600 1500 1000 750 * 600 500	max. 3,0 (15,0-25,0) 53,0-61,0 (52,0-62,0) 83,0-86,0 (81,5-87,5) (84,0-90,0) 83,0-86,0 (81,5-87,5) 73,5-74,5 (71,0-77,0) (59,7-67,3)	0,8 0,8 0,8 0,8 0,8 0,8 0,4 0
switch-off	1500	0	
Idle stop	400 325	max. 3,0 (12,0-22,0)	
End stop	200 350	min. 90,0 max. 90,0	
2.4 Solenoid	max. cut-in voltage test voltage		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 6,0
XK	20,1-22,1
XL	12,6-16,4

## Observations

24V Pulling electro-  
magnet  
Manifold-pressure  
compensator stroke  
= 4,5 mm  
Correction at the  
adjusting nut (46).

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# Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 MAN 5,6 f  
1.Edition

En

VE 6/11 F 1100 R 55-5  
0 460 416 024

supersedes-  
company: MAN  
engine: DO 226 ME

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0.2 mm  $\pm$  0.02 (0.04) mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	700	2,9- 3,3 mm		
1.2 Supply pump pressure	700	3,9-4,5 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery without charge-air pressure	700	69,0-70,0 cm <sup>3</sup> /1000 strokes		3,5
Full-load delivery with charge-air pressure	-	- cm <sup>3</sup> /1000 strokes		
1.4 Idle speed regulation	300	2,5-6,5 cm <sup>3</sup> /1000 strokes		3,5
1.5 Start	100	min. 90,0 cm <sup>3</sup> /1000 strokes		
1.6 Full-load speed regulation	1250	19,0-25,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent start of delivery				

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	500 0,9-1,7 (0,6-2,0)	700 (2,4-3,8)	900 4,0-4,8 (3,7-5,1)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,9-3,5		1100 5,7-6,3
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)		1100 55-138 (40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	1330 1250 1100 900 700 500	max. 1,5 (17,5-26,5) 75,5-78,5 (74,3-79,7) 73,5-76,5 (72,3-77,7) (66,8-72,2) 64,0-68,0 (62,6-69,4)	
switch-off	1100	0	
Idle stop	340 300	max. 1,5 (0-9,0)	
End stop	380 450	min. 81 max. 65	
2.4 Solenoid	max. cut-in voltage xxx min. 10 V rated voltage 12V.		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	-
KF	5,7-5,9
MS	1,2-1,4
SVS	max. 6.0
XK	25,0-27,0
XL	11,8-15,2

## Observations

Pulling electro-  
magnet

H19

H19

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11.82

# Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWV 2,0c  
2. Edition

En

VE 5/10 F 2400 L 35-6 (P)  
0 460 405 027; 028

supersedes 6.82  
company: VWV  
engine: Audi 100

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,14 mm  $\pm$  0,02 (0,04)

see VDT-W-460/

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	2,4-2,8 mm		
1.2 Supply pump pressure	1400	5,0-5,6 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery without charge-air pressure	1400	35,0-36,0 cm <sup>3</sup> /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	-- cm <sup>3</sup> /1000 strokes		
1.4 Idle speed regulation	375	6,0-10,0 cm <sup>3</sup> /1000 strokes		2,5(3,0)
1.5 Start	100	min. 53,0 cm <sup>3</sup> /1000 strokes		
1.6 Full-load speed regulation	2500	24,5-31,5 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent start of delivery	--	--		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9(4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	500 2,8-3,4		2400 7,5-8,1
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138(40-153)		2400 55-138(40-153)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2650 2500 2400 1400 750	6,0-12,0 (5,0-13,0) (24,0-32,0) 29,5-31,5 (28,2-32,8) (33,2-37,8) 24,5-27,5 (23,0-29,0)	
Mech. switch-off elektr.	2400 400	0 0	
Idle stop	500 375	max. 3,0 (4,0-12,0)	
End stop	400 500	min. 16,0 max. 23,0	
2.4 Solenoid	max. cut-in voltage xxx min. 10,0 V xxxxxxxx rated voltage 12V.		

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	--
KF	5,7-5,9
MS	1,7-1,9
SVS	max. 3,0
XK	18,5-20,5
XL	9,0-12,5
B	

## Observations

Mechanical stop  
control

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10.82

H20

H20

# Test Specifications

## Distributor-type

## Fuel-injection Pumps

46

WPP 001/4 VWW 1,6L  
4. Edition

En

VE 4/9 F 2400 R 66-12 (P)  
0 460 494 082; 083

supersedes 7.82  
company: VWW  
engine: Rabbit Autom.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm <sup>2</sup> )	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	2,9-3,3 mm		
1.2 Supply pump pressure	1500	4,9-5,5 bar (kgf/cm <sup>2</sup> )		
1.3 Full-load delivery without charge-air pressure	1500	30,0-31,0 cm <sup>3</sup> /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	- cm <sup>3</sup> /1000 strokes		
1.4 Idle speed regulation	415	7,0-11,0 cm <sup>3</sup> /1000 strokes		2,5(3,0)
1.5 Start	100	min. 38,0 cm <sup>3</sup> /1000 strokes		
1.6 Full-load speed regulation	2600	11,0-17,0 cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent start of delivery	--	-		

## 2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,4-3,8)	2400 6,1-5,9(5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm <sup>2</sup> )	400 2,1-2,7		2400 7,0-7,6
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138(40-123)		2400 55-138(40-123)

## 2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm <sup>2</sup> )
End stop	2700 2600 2400 1500 600	2,5-9,5 (2,0-10,0) (10,0-18,0) 26,0-28,0 (24,7-29,3) (28,2-32,8) 17,5-20,5 (16,0-22,0)	
switch-off mech. elektr.	2400 400	0 0	
Idle stop	1200 600 415	-max. 5,0 max. 6,0 (5,0-13,0)	
End stop	400 500	min. 13,5 max. 19,5	

## 3. Dimensions

for assembly  
and adjustment  
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 2,5
*FH	1,8-2,4
XK	18,4-20,4
XL	10,4-12,7
B	

## Observations

\*operating  
stroke (KSB)

2.4 Solenoid	max. cut-in voltage xxx min. 10,0 V rated voltage 12V.
--------------	---

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8.82

H21

H21

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

NPP 001/4

KHD 9,6g

2. Edition

En

PE 6 MW 100/720 LS 1017 RQ 300/1250 MW 26

0 403 546 003

1 - 6 - 5 - 4 - 3 - 2

0 - 75 - 120 - 195 - 240 - 315  $\pm$  0,50 (0,75)

supersedes 9.82  
KHD  
company: F6L413FX  
engine: 150 kW (205 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{3,10-3,20}{(3,05-3,25)}$  mm (from BDC)  $RW = 9,0 - 12$  mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1250	12,0+0,1	11,3-11,5	0,5(0,6)			
350	8,2-8,4	1,25-1,65	0,35(0,55)			
700	12,7+0,1		0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	11,6	1295-1310	300	8,3	100	min. 9,9	700	12,7-12,8
1450	0,0-1,0			4,0	1345-1375			350	8,2-8,4	850	12,4-12,5
								380-440	= 2,0	11-0	12,0-12,1

Torque-control travel  
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
1250	113,0-115,0 (111,0-117,0)			700	109,5-113,5 (107,5-115,5)	100	126,5-136,5 (123,5-139,5)
						950	12,5- 16,5 (10,0- 19,0)
						100-270	(80-300)

Checking values in brackets

11.82

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H22

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# Test Specifications

## Fuel Injection Pumps ②

### and Governors

NPP 001/4 MB 8,7 j

5. Edition  
En

supersedes 5.82  
company: Daimler Benz  
engine: OM 360 A  
155 kW (211 PS)

PE 6 MW 100/720 RS 1007  
RQ 300/1250 MW 12-1  
Komb. Nr. 0 403 546 001

1 - 5 - 3 - 6 - 2 - 4 = 0 - 60 - 120 - 180 - 240 - 300

 $\pm 0,50 (0,75)^\circ$ 

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

### A. Fuel Injection Pump Settings

Port closing at prestroke		3,80-3,90 (3,75-3,95)		mm (from BDC) RW 9,0-12,0 mm		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	cm <sup>3</sup> /100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
1250	11,2+0,1	9,95-10,15	0,35(0,6)			
300	6,9-7,1	1,35- 1,75	0,35(0,55)			
750	-	C, Sp. 4-5	0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check		Full-load speed regulation		Idle speed regulation		Torque control	
①		④		⑤		③	
Control rod travel	Setting point	Control rod travel	Test specifications	Control rod travel	Test specifications	Control rod travel	
rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8
650	13,1-13,9	650	13,5	10,2	1295-1310	300	7,0
1550	0,1- 1,0	VH=	46°	4,0	1395-1425	300	6,9-7,1
						395-435	= 2,0

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
②		③a		③b		⑥	
Test oil temp. 40°C (104°F)						Idle speed	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes/mm
1	2	3	4	5	6	7	Control rod travel
1250	99,5 - 101,5 (97,5 - 103,5)	500	750	93,0 - 97,0 (91,0 - 99,0)	100*	70,0 - 75,0 (67,0 - 78,0)	
			300	13,5 - 17,5 (11,0 - 20,0)			

Checking values in brackets

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 RVI 8,8 g

2 Edition:

En

PES 6 MW 100/320 RS 1016 RQ 750 MW 42

0 403 446 130

1 - 5 - 3 - 6 - 2 - 4

0 - 60 - 120 - 180 - 240 - 300  $\pm$  0,50 (0,75)

supersédés

company

engine

RVI

MIDR 06.02-12

100 kW (136 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,00-3,10</sup> (2,95-3,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,5+0,1	13,35-13,55	0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		Setting point Control rod travel mm 2		Test specifications Control rod travel mm 5		rev/min 6		Setting point Control rod travel mm 8		Test specifications Control rod travel mm 10		rev/min 11		Control rod travel mm 12	
785-795		3,9-4,1		13,5		750-755									
850		0,0-1,0		4,0		785-795									

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7	
700						100	
133,5-135,5 (131,5-137,5)						19,0-21,0 RW min. 80,0	

Checking values in brackets

11.82

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H24

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# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 4,7 c

1. Edition

En

PES 5 A 80 D 410/3 RS 2603 RS 325/1650 A 0 B 2087 L

supersedes

company: KHD

engine: F 5 L 912

63 kW (85 PS)<sub>1</sub>  
at 3300 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 - 2,0

(1,85-2,05)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> / 100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	9,9-10,0	5,1 - 5,2	0,2(0,35)			
325	8,7-8,9	1,7 - 2,1	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	approx. 18	325	8,8	-	-
approx. 49 ⑤	8,9 4,0 1900	1690-1700 1740-1770 0 - 1,0					100 325 550- 600	min.13,6 8,7-8,9 =2,0 max.1,8		

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	3	rev/min	cm <sup>3</sup> /1000 strokes	5	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	5	6	7	8	9
1500	50,5-51,5 (49,0-53,0)	1690-1700*	-	-	-	-	-	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications

## Fuel Injection Pumps and Governors

WPP 001/4 DAF 11,6 t 2

2. Edition

En

PE 6 P 100 A 320 RS 384 RQ 225/1100 PA 574

supersedes 5.81

company: DAF

engine: DKL  
151 kW (205 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

3,2-3,3  
(3,15-3,35)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,5+0,1	11,1-11,3	0,3(0,6)			
225	7,2-7,4	1,1 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Checking of slider FRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,8 4,0 1300	1140-1155 1170-1200 0 - 1,0	225	7,3	100 225 325	min. 7,5 7,2-7,4 365=2,0	600 1050 800 855	11,5-11,6 10,8-11,0 11,2-11,4 10,9-11,2

Torque-control travel  
on flyweight assembly dimension a = 0,25 mmSpeed regulation: At 1140-1155 min<sup>-1</sup>1 mm less control  
rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
600	111,0-113,0 (109,0-115,0)	600		1050	107,0-111,0 (105,0-113,0)	100	195,0-235,0 =19,5-21,0 mm RW

Checking values in brackets

11.82

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Testoil-ISO 4113



# Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 100 A 320 RS 384

RQ 225/1100 PA 517

supersedes 10.80

company DAF

engine: DKL

151 kW (205 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,2-3,3</sup>  
(3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,5+0,1	11,0-11,2	0,3 (0,6)			
225	7,2-7,4	1,1-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,8 4,0 1300	1140-1155 1170-1200 0-1,0	225	7,3	100 min. 7,5 225 7,2-7,4 325-365=2,0		600 1050 800 855	11,5-11,6 10,8-11,0 11,2-11,4 10,9-11,2

Torque-control travel  
on flyweight assembly dimension a = 0,25 mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3		rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/mm 7
600	110,0-112,0 (108,0-114,0)	600		1050	107,0-111,0 (105,0-113,0)	100	195,0-235,0 =19,5-21,0

Checking values in brackets

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 GUS 21,2 a  
2. Edition

En

Testoil-ISO 4113

PE 8 P 130 A 520/4 RS 3085 RQV 350-900 PA 602

superseded 81  
company Guascor  
engine E 212

1 - 2 - 4 - 5 - 6 - 3 - 7 - 8 je  $45^0 \pm 0,5^0 (\pm 0,75^0)$

Values apply to  
engine nozzle-and-holder assemblies 1 688 901 019  
and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,2 - 3,3$  mm (from BDC)  
(3,15-3,35)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	8,5-8,6	18,8 - 19,1	0,5(0,9)			
350	4,0-4,2	2,2 - 2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	950 1100	15,2-17,8 0 - 1	-	-	-	ca. 10	100 350	min. 5,6 4,0-4,2	300 500 700 900	1,0-1,2 2,3-3,2 4,7-5,1 7,8
ca. 58	7,5 4,0	940 - 950 965 - 995				355-455 (3a)				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b)	Fuel delivery characteristics high idle speed (5a)		Starting fuel delivery idle switching point (6)	Torque-control travel (5)		
rev/min	cm³/1000 strokes	rev/min (4a)	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
900	188,0-191,0 (185,0-194,0)	940 - 950*	-	-	100	19,5 - 21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.82

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J4

# Test Specifications

## Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 10,5 a

1. Edition

En

PES6P120A320RS3092-1

RQV320-1300 PA 654

supersedes

company SSCM

engine 6LC520 S2

277 kW(376 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke  $2,8-2,9$  mm (from BDC) = RW 9,0-12,0 mm  
(2,75-2,95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1280	12,6+0,1	23,5-23,9	0,5(0,9)			
320	7,2-7,4	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1305	15,2-17,8	-	-	-	ca. 16	100	min. 8,8	300	1,3-1,5
ca. 66	11,6	1325-1335					320	7,2-7,4	630	3,7-4,0
	4,0	1415-1445				350-460			970	5,5-5,7
	1550	0 - 1,0				③a			1300	8,4

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1280	235,0-239,0 (232,0-242,0)	1325-1335*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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J5

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 14,0 a  
1. Edition

En

PE 12 P 100 A 520 RS 3103 RQV 375-1000 PA 639

supersedes\_

company: SSCM

engine: Poyaud V 12-520 AN  
219 kW (298 PS)

1- 8- 5-10- 3 - 7- 6 - 11- 2 - 9 - 4 - 12

0-15-60-75-120-135-180-195-240-255-300-315 °  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,8-2,9</sup>  
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	9,3-9,5	0,3(0,6)			
375	7,7-7,9	0,8-1,4	(0,3(0,5))			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1070	15,2-17,8	-	-	-	ca.17	100 375	min. 9,3 7,7-7,9	350 570 780 1000	0,8-1,1 3,5-3,8 5,0-5,4 7,6
ca. 63	9,8 4,0 1250	1040-1050 1090-1120 0 - 1,0				375-475 (3a)				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	93,0-95,0 (91,0-97,0)	1040-1050*	-	-	100	230,0-250,0	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 I

1. Edition

En

PE 10 A 95 D 610/4 LS 2452

RQV-750 AB 996 L

supersedes

company KHD

engine: F10L413F

196 kW (266 PS)

bei 1500 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,0-2,1}{(1,95-2,15)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
710	9,5-9,6	8,0-8,2	0,3 (0,6)			
300	5,6-5,8	0,4-0,9	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	760	15,2-17,8	-	-	-	-	-	-	-	-
ca. 27	9,0 4,0	750-755 770-785								

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑧	Torque-control travel ⑤		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
710	79,5-81,5 (77,5-83,5)	750-755*	-	-	100	min.116,5 = 13,9-14,3 mm RW	-	-

Checking values in brackets

\* 0,5 mm less control rod travel than col. 2

11.82

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Testoil-ISO 4113

J7

J7

# Test Specifications

## Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 d 1

1. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV 300-1250 AB 1026 DL

 1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2  
 0-27-72-99-144-171-216-243-288-315°  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

supersedes -

company: KHD

 engine: F 10 L 413 F  
 235 kW (320 PS)  
 bei 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{2,0-2,1}{(1,95-2,15)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	9,1-9,3	0,3(0,6)			
300	6,8-7,0	1,4-2,0	0,3(0,7)			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1295	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	250	0,5-0,8
ca. 66	9,3 4,0 1500	1290-1300 1340-1370 0-1,0				330-400	300	5,9-6,1	580	2,8-3,1
							550-680	2,0	920	4,6-4,9
							850	max. 1,0	1250	7,6

Torque control travel a = 0,4 mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	4a	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	91,0-93,0 (89,0-95,0)	1290-1300*		1000	90,5-93,5 (88,5-95,5)	100	14,3-15,3 mm RW	1250	10,3+0,1
				700	91,0-94,0 (89,0-96,0)			1000	10,3+0,2
								700	10,7+0,1
								400	10,7+0,1

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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# Test Specifications

## Fuel Injection Pumps and Governors

WPP 001/4 MB 11,4 o

2. Edition

En

**Testoil-ISO 4113**

PES 6 P 120 A 820 LS 3095 RSV 350-750 P1/487

supersedes 82

company Daimler-Benz

engine: OM 407 A

169 kW (230 PS)

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

 Port closing at prestroke  $\begin{matrix} 4,0 - 4,1 \\ (3,95 - 4,15) \end{matrix}$  mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	cm <sup>3</sup> /100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
730	12,4+0,1	19,6 - 19,8	0,5(0,8)			
350	5,7-5,9	3,0 - 4,0	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in  .

### B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	700	0,3-1,8	-	-	-	-	-	-	-	-
	x =	2,25								
⑤ ca. 33	11,4	745-760								
	4,0	765-795								
	900	0,3-1,7								

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min						
rev/min	cm <sup>3</sup> /1000 strokes	3	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	9
730	196,0-198,0 (193,0-201,0)	745-760 *	-	-	100	170,0-190,0	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCA 8,0 e. 2

3. Edition

En

PE 6 P 110 A 720 RS 393

RSV 350-1200 P 1/462 R

superseded 2.82

company: Scania

engine: D 8

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,0-3,1</sup>  
(2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,0+0,1	9,5 - 9,7	0,4(0,8)			2,5 <sup>+</sup> 0,1
350	6,9-7,1	0,8 - 1,2	0,3(0,5)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	350	6,5	-	-
		x = 4,0					100	min. 20,0		
							350	6,9-7,1		
ca. 62	11,0	1240-1250					530-590	= 2,0mm		
⑤	4,0	1275-1305								
	1440	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1200	95,0- 97,0 (92,0-100,0)	1240-1250*	600	88,5 - 91,5 (85,5 - 94,5)	100	170 - 210 20,0- 21,0 mm RW	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.82

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# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 f 2

1. Edition

En

PES 4 A 80 D 410 RS 2519

RSV 350-1275 A2B 1004 DL

supersedes-

company Daimler-Benz

engine OM 314

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,15-2,25) mm (from BDC)  
(2,10-2,30)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1275	9,0-9,1	5,3-5,4	0,2 (0,35)			
350	7,4-7,6	1,6-2,2	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 22	350	7,0	1275	9,0-9,1
	X = 4,0								900	9,3-9,5
							100	min. 19,0	500	9,6-9,7
							350	7,4-7,5		
ca. 52	8,0	1315-1325					720-780	= 2,0		
2a	3,6	1355-1385					100	max. 1,0		
	1600	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ) rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	5	6	7	8	9	10
1275	52,5-53,5 (51,0-55,0)	1315-1325*	900	48,5-50,5 (47,0-52,0)	100	12,8-13,4 mm RW	-	-	-
			500	45,5-47,5 (44,0-49,0)					

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

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Testoil-ISO 4113

J11

J11

# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 11,6 t 4

1A 1. Edition

En

PE 6 P 110 A 320 RS 385-1 RSV 250-750 P 7/479

supersedes  
company DAF  
engine DK, DKT, DKS; DKA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke <sup>2,8-2,9</sup>(2,75-2,95) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,6+0,1	16,9-17,1	0,4(0,8)			
250	6,8-7,0	2,6-3,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in  

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control-lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	9	10	11
loose	700	0,3-1,0	-	-	-	ca. 18	250	6,9	-	-
	x = 3,75						250	6,8-7,0		
ca. 44	11,6	790-795					245-305	= 2,0		
2a	4,0	810-825								
	950	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to .)				Idle			
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel	
1	2	3	4	5	6	7	8	9	
750	169,0-171,0 (166,0-174,0)	790-795*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

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# Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 VOL 7,0h  
3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 390 RSV 200 - 750 P 4/421

superseded 5,81  
company Volvo  
engine TD 70 GG

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15)  
3,00-3,10 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,7+0,1	10,2 - 10,4	0,4(0,8)			2,5+0,1** (max.2,2-2,9)
300	5,4-5,6	1,9 - 2,9	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

\*\*In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly

## B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 x = 4,0				ca.18	300	5,5		
ca.37		750-755=9,7 775-785=4,0 1000=0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to .) rev/min				Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	4	rev/min 5	cm <sup>3</sup> /1000 strokes	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	102,0 - 104,0 ( 97,0 - 105,0)	750-755*							

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

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# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5,7 x 6

1. Edition

En

PES 6 A 90 D 410 RS 2569

RSV 350-750 AOB 741 L

supersedes

company

engine

Daimler-Benz

OM 352

52 kW (71 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35  
(2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,2+0,1	5,4 - 5,5	0,3 (0,45)			
350	7,4-7,6	0,5 - 1,1	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 15	350	7,5	-	-
	x = 2,0						100	min. 19,5		
ca. 26	10,2	750-755					420-480	= 2,0		
2a	4,0	801-814					550	**		
	8,5	0,3-1,7						max. 1,0		

\*\* Set idle auxiliary spring at 2,0 mm.  
The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ) rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
700	54,0-55,0 (52,0-57,0)	750-755	-	-	100	78,0-88,0	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

11.82

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J14

J14

①

# Test Specifications

## Fuel Injection Pumps ① WPP 001/4 IHC 9,0 a

1. Edition

En

PES 8 A 95 D 320 RS 2586

RQV 325-1400 AB1097 R

supersedes:

company: IHC

engine: D9L

180 PS (133 kW)

Suction-gallery pressure 2,5 bar  
overflow valve 1 417 413 019

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

**Testoil-ISO 4113**

### A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{2,55-2,65}{(2,50-2,70)}$  mm (from BDC) = RW 10,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,6+0,1	7,2 - 7,4	0,3 (0,6)			
325	7,3-7,4	0,9 - 1,5	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 67	10,6 4,0 1650	1140-1450 1535-1565 0-1,0	-	-	-	ca. 10	100 325 680-740 = 2,0	min. 9,6 17,2 - 7,4	-	-

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	72,0-74,0 (70,0-76,0)	1440-1450*	800	max. 65,0	100	75,0-95,0 = 17,2 mm RW		
					325	9,0-15,0		
					170-250			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

J15

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# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8b

5. Edition

En

PES 6 P 120 A 320 RS 417 RQV 300-1200 PA 527 K

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

supersedes 8.81

company: RVI

engine: MIDS 062030

158 kW (215 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port-closing mark 9,5° camshaft after  
port closing of cylinder 1.

Port closing at prestroke 2,8 - 2,9  
(2,75 - 2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	9,3-9,4	15,4 - 15,6	0,5(0,9)			
300	4,1-4,3	1,8 - 2,4	0,5(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 10	100	min. 5,7	250	0,4-0,7
ca. 60	8,3 4,0 1500	1240-1250 1330-1360 0-1,0				330-445	300	4,1-4,3	570 880 200	3,6-3,8 5,3-5,4 8,0

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	154,0-156,0 (151,0-159,0)	1240-1250*	800	140,5-146,5 (137,5-149,5)	100	130,0-150,0	1200	9,3+0,1
			500	82,0- 88,0 (79,0- 90,0)	300	18,0- 24,0 100-220 (80-240)	350	7,7+0,2
							750	8,5+0,2

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

WPP 001/4 MWM 53,1 a

2. Edition

En

supersedes 82

company MWM - Südbremse

engine: TBD 602 V 16 - K

PE 8 P 130 A 500/5 LS 3053 (1)

PE 8 P 130 A 500/5 LS 3054 (2)

1 - 6 - 8 - 2 - 4 - 7 - 3 - 5 (1)

1 - 6 - 2 - 8 - 4 - 7 - 3 - 5 (2)

0 -45 -90 -90 -135-180-225-315°  $\pm 0,5^\circ (\pm 0,75^\circ)$  0 -45 -90 -180-225-270-315-315°  $\pm 0,5^\circ$   
 $(\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke  $2,8 - 2,9$  mm (from BDC) RW = 21,0 mm  
 $(2,75 - 2,95)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0 $\pm 0,1$	34,7 - 35,1 (34,4 - 35,4)	0,5 (0,9)			
300	5,3-5,5	4,8 - 5,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12

Torque-control travel on flyweight assembly dimension a =  mmSpeed regulation At 

1 mm less control rod travel

### C. Settings for Fuel Injection Pump without Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	Control rod travel mm 7
					100	19,5 - 21,0
The full-load delivery is adjusted on the engine in accordance with the engine inspection sheet. The pumps operate in tandem.						

Checking values in brackets

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 1 i 1

4. Edition

En

PES 6 A 80 D 410/3 RS 2527 RQV 300-1400 AB 951 DL (1-2)  
RS 2348 RQ 300/1400 AB 935 DL (3)

supersedes 3.82

companion KHD

engine: F 6 L 913

RQ 300/1325 AB 935 DL (4,7) (1-2) 96 kW (130PS) / 2800min<sup>-1</sup>

RQ 300/1250 AB 935 DL (5-6) (3) 96kW (130PS) / 2800min<sup>-1</sup>

Instructions for items 2 and 5, page 4!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

(4,7) 89kW (121PS) / 2650min<sup>-1</sup>(5) 89kW (121PS) / 2500min<sup>-1</sup>(6) 77kW (105PS) / 2500min<sup>-1</sup>

## A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 - 2,0 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,5+0,1	6,7 - 6,9	0,2(0,35)			
300	8,0-8,2	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

.. RS 2527

RS 2348 m. RQV AB 951 (1-2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1470	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	250	0,4-1,0
ca. 65	11,0 4,0 1700	1440-1450 1545-1575 0 - 1,0				410-650 (3a)	300 530-590= 2,0	5,9-6,1 2,0	630 1020 1400	2,8-3,5 4,6-5,0 7,6

Torque control travel a = 0,9 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	69,0-70,0 (67,5-71,5)	1440-1450*	700	64,5-66,5 (63,0-68,0)	100	17,3-17,6 mm RW	1400 1150 700	12,0+0,1 12,3+0,3 12,8+0,2

Checking values in brackets

\* 1 mm less control rod travel than col. 2

9.82

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## B. Governor Settings

..RS 2527 u. ..RS 2348 m.  
RQ 300/1400 AB 935 DL (3)

KHD 1 i 1

-2-

(2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	19,2-20,8	700	20,0	11,0	1445-1460	300	8,5	100	min. 10,0	1400	12,0-12,1
VH	ca. 46°			4,0	1540-1570			300	8,4-8,6	950	12,5-12,8
				1700	0 - 1,0			600-640=2,0mm		700	13,0-13,2
								750	max.1,0		

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min		rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3		4	5	6	7
1400	69,0 - 70,0 (67,5 - 71,5)	-		700	64,5-66,5 (63,0-68,0)	-	-

Checking values in brackets

## B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1325 AB 935 DL (4,7)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
820	19,2-20,8	820	20,0	11,5	1370-1385	300	6,0	100	min. 7,5	1325	12,5-12,6
VH	ca. 46°			4,0	1460-1490			300	5,9-6,1	775	13,6-13,7
				1600	0 - 1,0			500-540 = 2,0		875	13,2-13,4
								700	max. 1,0	1000	12,6-12,9

Torque-control travel  
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min		rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3		4	5	6	7
1325	68,5-69,5 (67,0-71,0)	700		775	72,5-75,5 (71,0-77,0)	-	-

En Checking values in brackets

## B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1250 AB935DL (5)

-3-

(2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	mm	rev/min	mm	mm	rev/min	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	11,5	1295-1310	300	8,5	100	min. 10	1250	12,5-12,6
VH ca. 46°				4,0	1370-1400			300	84,-8,6	950	13,0-13,3
								580-620	= 2,0	800	13,5-13,6
								750	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0,4 mm Speed regulation At 1295-1310 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min		rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3		4	5	6	7
1250	66,5 - 67,5 (65,0 - 69,0)	-		800	64,0 - 66,0 (62,5 - 67,5)	-	-

Checking values in brackets

## B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1250 AB 935 DL (6)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	mm	rev/min	mm	mm	rev/min	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	10,9	1295-1310	300	8,5	100	min.10,0	1250	11,9-12,0
VH ca. 46°				4,0	1360-1390			300	8,4-8,6	950	12,7-12,9
								580-620	= 2,0	800	13,5-13,6
								750	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0,65 mm Speed regulation At 1295-1310 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min		rev/min	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1	2	3		4	5	6	7
1250	58,0 - 60,0 (56,5 - 61,5)	-		700	53,5 - 56,5 (52,0 - 54,0)	-	-

En Checking values in brackets

Testoil-ISO 4113

With item 2 - PES 6 A 80 D 410/3 RS 2527 + 2348 with RQV 300-1400 AB 951 DL  
and item 5 - PES 6 A 80 D 410/3 RS 2527 + 2348 with RQ 300/1250 AB 935 DL

an engine code no. instead of the engine output is sometimes given by the  
customer on the engine nameplate.

These engine code nos. 1025, 1032, 1035 and 0708 require a reduced  
full-load delivery:

n 1250 = 57,5 - 59,5 cm<sup>3</sup>/1000 strokes  
n 850 = 55,5 - 57,5 cm<sup>3</sup>/1000 strokes

From engine no. 6216 324 the following applies:

n 1250 = 63,5 - 66,5 cm<sup>3</sup>/1000 strokes  
n 850 = 60,5 - 62,5 cm<sup>3</sup>/1000 strokes.

This must at all costs be taken into account when new adjustments and  
control measurements are made.

# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 6,1 a

En

3. Edition

Testoil-ISO 4113

PES 6 A 85 D 410/3 RS 2366 EP/RSV 325-1400 A8B674D, 707 D  
325-1150 A8B674D, 707 D

RS 2415

RS 2532

superseded 1.77

company: K H D

engine: BF 6 L 913

## Instructions P. 3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> / 100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,4			
	6	0,6 - 1,4				
200	9	1,4 - 2,2				

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

EP/RSV 325-1400 A8B674D, 707D

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 69	1400 1450 1500	16,0 10,5 4,0	without auxiliary spring			ca. 20	325	5,5	1400	0
ca. 68	1400 1510 1600	ca. 10,0 ca. 4,0 0,3 - 1,5					200 325 500 650	19 - 21 5,2-5,8 1,2-3,3 0 - 1,5	500	1,2-1,4

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
rev/min	cm <sup>3</sup> /1000 strokes	3		4	5	6	7	8	9
1	2								
LDA	0,7 bar			LDA	0,7 bar				
	Instructions P. 3					100	119,5-129,5	325	5,5**
				LDA	0 bar				
				500	43,5 - 47,5				
(increase by $\pm 1,0$ cm <sup>3</sup> )									./.

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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**B. Governor Settings**

EP/RSV 325-1150 A8B674D, 707 D

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1150	16,0	without auxiliary spring			ca. 21	325	5,5	1130	0
	1200	11,1								
	1250	5,4								
②a	1220	7,5-10,4	with auxiliary spring				200	19 - 21	500	1,0-1,2
	1300	1,3-3,6					325	5,5-5,8		
	1380	0,3-1,5					500	1,4-3,4		
							660	0 -1,5		

**C. Settings for Fuel Injection Pump with Fitted Governor**

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery		⑤ Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min				Idle			
rev/min	cm <sup>3</sup> /1000 strokes	rev/min		rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
LDA	0,7 bar			LDA	0,7 bar	100	119,5-129,5; 325		5,5**
Instructions P. 3				LDA 500	0 bar 43,5 - 47,5				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

**D. Adjustment Test for Manifold Pressure Compensator**Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing  
XXXXXXX

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm XXX
all governors	0,38	0,10	0,2 - 0,3 1,6 - 2,0

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b)	Fuel delivery characteristics high idle speed (5a)		Starting fuel delivery Idle switching point (6)		Torque-control travel (5)	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min (4a)	rev/min	cm <sup>3</sup> /1000 strokes (5b)	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

BF 6 L 913 - PES 6 A D..RS2366, 2415

F or B output at .. min<sup>-1</sup>

1400	88,0 - 90,0	1420	800	80,0 - 83,0	160 PS	n = 2800
1400	84,0 - 86,0	1420	800	66,0 - 69,0	142 PS	n = 2800
1325	90,5 - 92,5	1340	850	88,5 - 90,5	168 PS	n = 2650
1325	87,5 - 89,5	1340	800	82,5 - 85,5	160 PS	n = 2650
1325	82,5 - 84,5	1340	800	66,0 - 69,0	140 PS	n = 2650
1250	87,0 - 89,0	1270	800	84,5 - 87,5	160 PS	n = 2500
1250	83,0 - 85,0	1270	800	76,0 - 79,0	148 PS	n = 2500
1250	81,0 - 83,0	1270	800	69,5 - 72,5	140 PS	n = 2500
1200	86,0 - 88,0	1220	800	84,5 - 87,5	156 PS	n = 2400
1200	78,0 - 80,0	1220	800	68,0 - 71,0	135 PS	n = 2400
1165	84,0 - 86,0	1180	800	84,5 - 87,5	152 PS	n = 2330
1150	83,5 - 85,5	1165	800	84,5 - 87,5	152 PS	n = 2300
1150	80,0 - 82,0	1165	800	72,0 - 74,0	142 PS	n = 2300
1100	82,0 - 84,0	1115	800	84,5 - 87,5	147 PS	n = 2200
1075	82,0 - 84,0	1090	800	84,5 - 87,5	144 PS	n = 2150
1075	78,0 - 80,0	1090	800	76,0 - 79,0	136 PS	n = 2150
1050	76,5 - 78,5	1065	800	73,5 - 76,5	130 PS	n = 2100
1000	82,5 - 84,5	1015	800	84,5 - 87,5	137 PS	n = 2000
1000	77,0 - 79,0	1015	800	72,0 - 75,0	130 PS	n = 2000
900	82,0 - 84,0	910	800	84,5 - 87,5	125 PS	n = 1800
875	68,0 - 70,0	885	800	66,0 - 69,0	106 PS	n = 1750
750	85,0 - 87,0	760	-	-	105 PS	n = 1500
750	78,0 - 80,0	760	-	-	100 PS	n = 1500

## Please note

1. \*\* With Liebherr excavators: single-lever control, therefore use shorter screw 1 423 400 031 and set this at 0.3 - 1.0 before the stop.
2. LDA adjustment to be carried out according to VDT-W-420, 5.
3. Dimension H = 22.5 mm = basic setting of LDA.

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,61

2. Edition

En

PE 8 P 120 A 320 LS 3807 ROV 300-1150 PA 526

supersedes 5.81

company Daimler-Benz

engine OM 422 LA

276 kW (375 PS)

1-8-7-2-6-3-5-4 je 45° ±0,5° (±0,75°)

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1  
(3,95-4,15 mm (from BDC) 7yl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6+0,1	18,9-19,1	0,5(0,9)			
300	4,8-5,0	1,2-2,0	0,8(1,2)			
1150/600	11,6+0,1	C, Sp. 2 u.5	0,75(1,2)			
500	10,1+0,1	C, Sp. 5	0,75			

Adjust the fuel delivery from each outlet according to the values in 

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca.10	100	min.6,0	250	1,0-1,2
ca.65	10,6	1190-1200					300	4,2-4,4	550	3,4-3,7
	4,0	1230-1260							850	4,9-5,3
	1350	0 - 1,0				320-465			150	7,6

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) rev/min cm <sup>3</sup> /1000 strokes 1 2		Rotational speed limitation intermediate speed rev/min 4a		Fuel delivery characteristics high idle speed rev/min cm <sup>3</sup> /1000 strokes 4 5		Starting fuel delivery idle switching point rev/min cm <sup>3</sup> /1000 strokes 6 7		Torque-control travel rev/min Control rod travel mm 8 9	
LDA 900	0,7 bar 189,0-191,0 (186,0-194,0)	1190-1200*		LDA 600	0,7 bar 182,0-186,0 (179,0-189,0)	100			
LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)			LDA 500	0 bar 139,0-141,0 (136,0-144,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

2.83

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# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

MB 14,6 1

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 8 P..LS 3807 + ROV.. PA 526	0,44	0,70 0 0,34	11,1-11,3 11,6-11,7 10,1-10,2 10,5-10,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 f2

1. Edition

En

PE 6 P 120 A 320 RS 3071 Z RQV 250-1100 PA 371/2R

supersedes -  
company: Volvo  
engine: TD 120 F

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

## A. Fuel Injection Pump Settings

Port closing at prestroke  $\frac{2,6-2,7}{(2,55-2,75)}$  mm (from BDC)  $\frac{PW\ 9,0-12,0\ mm}{}$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,7+0,	25,1-25,4	0,5(0,9)			
250	5,3-5,5	2,2-2,6	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 12	100	min,7,0	200	0,7-0,9
ca. 46	11,7	1140-1150					250	5,3-5,5	500	2,9-3,3
	4,0	1215-1245					310-360=2,0		800	5,1-5,4
	1350	0 - 1,0							1100	7,9

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 251,0-254,0 (248,0-257,0)	1140-1150*	LDA 700	0 bar 163,0-167,0 (160,0-170,0)	100	240,0-280,0 = RW 20,0 21,0 mm	-	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.83

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K3

1/13

# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

VOL 12,0 f 2

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm: (1)
PE6P..RS 3071Z + RQV..PA 371/2R	0,67	0,90 0 0,26	11,9-12,0 12,7-12,8 9,3- 9,4 10,1-10,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,4 q

1. Edition

En

PES 6 P 120 A 820 LS 3112 RSV 350-1100 PQ/500

Values apply to  
engine nozzle-and-holder assemblies 1 688 901 019  
and engine fuel-injection tubing 1 680 750 067

supersedes -  
company Daimler-Benz  
engine OM407A  
206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $4,0 - 4,1$   
(3,95-4,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,5+0,1	17,5-17,7	0,5 (0,9)			
350	4,7-4,9	1,6-2,2	0,8 (1,2)			
600	11,8+0,1	C, Sp. 4 u. 5	0,75(1,2)			
500	10,5+0,1					

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 25	350	4,8	1100	11,5-11,6
	x = 3,25								750	11,7-11,9
							420-460	= 2,0	600	11,8-11,9
ca. 48	10,5	1135-1145								
2a	4,0	1215-1245								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to ) rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1100	0,7 bar 175,0-177,0 (172,0-180,0)	1135-1145*	LDA 600	0,7 bar 177,0-183,0 (174,0-186,0)	100	150,0-170,0	-	-	
			LDA 500	0 bar 143,0-145,0 (140,0-148,0)					

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.83

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Testoil-ISO 4113

K5

# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

MB 11,4 q

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6P..LS3112 + RSV..PO/500	0,70	0,40 0,50 0	11,8 - 11,9 10,7 - 10,9 11,6 - 11,7 10,5 - 10,6

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 o 4

1. Edition

En

PE 6 P 120 A 320 RS 415-1 RSV 250-1100 P5/474

supersedes:

company DAF

engine DKS-1160 P

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	11,9+0,1	18,8-19,2	0,4(0,8)			
250	6,7-6,9	1,9-2,3	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	6,3	650	12,1-12,2
	x = 5,0						250	6,7-6,9	1100	10,4-10,6
ca. 53	9,4	1140-1150					410-475	2,0	800	11,5-11,7
2a	4,0	1200-1230							900	10,9-11,2
	1350	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ) rev/min				Idle			
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	rev/min 4	cm <sup>3</sup> /1000 strokes 5		rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 650	0,7 bar 188,0-192,0 (185,0-195,0)	1140-1150*	LDA 1100	0,7 bar 187,0-191,0 (184,0-194,0)		100	310,0-350,0 = 19,5 - 21,0 mm RW	-	-
			LDA 600	0,7 bar 133,0-137,0 (130,0-140,0)					

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.83

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Testoil-ISO 4113

K7

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# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
increasing

DAF 11,6 o 4

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P.. RS 415-1 + RSV..P 5/474	0,27	0,70 0 0,12	11,4-11,5 11,9-12,0 9,8-9,9 10,2-10,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

40

WPP 001/4 SAU 12,0 e

1. Edition

En

PES 6 P 120 A 420 RS 3063, Z RQ 200-1100 PA 279-1

Values apply to  
engine nozzle-and-holder assemblies 1 688 901 019  
and engine fuel-injection tubing 1 680 750 067

supersedes

company: Saurer

D 3 KTUB

engine: 155 kW (211 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,0-9,1	13,4-13,8	0,5(0,8)			
250	5,6-5,8	1,3-1,9	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9 rev/min 10		Torque control rev/min 11 Control rod travel mm 12	
550	15,6-16,4	550	16,0	8,0 4,0 1350	1145-1160 1180-1210 0-1,0	250	5,7	100 250 340-380=2,0	min. 7,1 5,6-5,8 2,0	1100 910 860 550	9,0-9,1 9,1-9,3 9,2-9,6 9,5-9,6

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At 1145-1160 min<sup>-1</sup>

1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
LDA 1100	0,7 bar 134,0-138,0 (131,0-141,0)	-	-	LDA 700 LDA 400	0,7 bar 143,0-147,0 (140,0-150,0) 0 bar 89,0-93,0 (86,0-96,0)	100	210,0-240,0

Checking values in brackets

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1.83

Testoil-ISO 4113

K9

# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure  
increasing

SAU 12,0 e

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS3063,Z +RQ..PA 279-1	0,26	0,70 0 0,11	9,3-9,4 9,5-9,6 8,3-8,4 8,6-8,8

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ② and Governors

Testoil-ISO 4113

PE 6 P 110 A 720 RS3040

RQ 250/1100 PA411R

supersedes 8.79

company: Scania

engine: DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $3,30-3,40$  mm (from BDC)  $RW 9,0 - 12,0$  mm  
(3,25-3,45)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,1	15,7 - 15,9	0,4(0,8)			2,5+0,1** (max. 2,2-2,9)
225	3,9-4,1	0,9 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

\*\* In the case of greater dispersion after the delivery-valve spring pre-tension accordingly.

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11	12				
700	15,6-16,4	700	16,0	11,5 4,0 1350	1140-1150 1230-1260 0 - 1,0	225	3,3	100 225 255-315	min.5,3 3,9-4,1 =2,0	-	-				

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

SCA11,0r1 - 2 -

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
3040 + 411R	0,38	0,50 0 0,28	12,7-12,8 13,0-13,1 11,7-11,8 12,0-12,2

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 11,6 u

2. Edition

En

**Testoil-ISO 4113**

PE 6 P 110 A 720 RS 441

RSV 250-1200 P5/493

supersedes 8.81

company DAF

engine D RS 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

2,8 - 2,9  
(2,75-2,95)

mm (from BDE) RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,2+0,1	13,6 - 13,8	0,4(0,8)			
250	5,0-5,2	0,7 - 1,2	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 24	250	4,6	400	12,4+0,1
	x =	5,0							300	12,6+0,5
⑤ ca. 58	11,2	1240-1250					250	5,0-5,2		
	4,0	1310-1340					525-585	=2,0mm		
	1500	0,3-1,7								

The numbers denote the sequence of the tests

## C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
LDA	0,7 bar		LDA	0 bar					
850	136,0-138,0 (133,0-141,0)	1240-1250 *	600	91,0-94,0 (88,0-97,0)	100	245,0-285,0 RW 19,5- 21,0 mm	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.83

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure  
increasing

DAF 11,6 u

-2-

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
.. RS 441 + .. P5/493	0,36		11,7 - 11,8
		0,70	12,2 - 12,3
		0	10,4 - 10,5
		0,30	11,0 - 11,2

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

# Test Specifications

## Fuel Injection Pumps ① and Governors

WPP 001/4 MB 19,1 m 1

2. Edition

En

**Testoil-ISO 4113**

PE 12 P 110 A 320 LS 832

RQV 350-1150 PA 493 R

supersets 10 81

company Daimler-Benz

OM 404 A

engine 386 kW (525 PS)

 1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7 - 12  
 0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

 Port closing at prestroke  $\frac{3,2-3,3}{(3,15-3,35)}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	13,1+0,	14,0 - 14,2	0,4(0,8)			
350	7,5-7,7	1,8 - 2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 18	100 350 690-750=2,0mm	min. 8,6 7,0-7,2	300 600 850 1150	1,4-1,6 3,6-3,9 5,1-5,4 7,9
ca. 66	12,1 4,0 1450	1185-1195 1295-1325 0 - 1,0				3a				

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min	cm³/1000 strokes	rev/min ④a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes mm RW	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1185-1195*	LDA	0 bar	100	19,5-21,0	-	-
1130	140,0-142,0 (137,0-145,0)		500	121,0-123,0 (118,0-126,0)				
1130	100,0-102,0 ** ( 97,0-105,0)							

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.82

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# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

MB 19,1 m 1

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 P.. LS 832 + .. PA 493 R	0,7	0 0,4 0,33	13,1-13,2 12,3-12,4 12,9-13,0 12,5-12,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

\*\* Adjusted at the inner lever of the reduced-delivery stop.

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 Vol.7,0 i

2. Edition

En

supersedes 80

company: Volvo

engine: TD 70 F

180 kW(245PS)

**Testoil-ISO 4113**

PE 6 P 110 A 320 RS 413 Y RQV 250-1200 PA 499

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

 Port closing at prestroke  $\begin{matrix} (2,95-3,15) \\ 3,00-3,10 \end{matrix}$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	2,7+0,1	12,9 - 13,1	0,4(0,8)			2,5 ± 0,1** (max.2,2-2,9)
250	5,2-5,4	0,9 - 1,3	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in 
 In the case of greater dispersion alter the delivery-valve spring pre-tension  
 \*\*accordingly.

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200 1500	15,2-17,8 0 - 1				ca.9	100 250	min.6,9 5,2-5,4		
ca.63	11,7 4,0	1240-1250 1375-1405				300-450 (3a)				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery Idle switching point (6)	Torque-control travel (5) Control rod travel mm		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 129,0-131,0 (126,0-134,0)	1240-1250*	LDA 700	0 bar 78,5 - 80,5 (75,5 - 83,5)	100	160,0-200,0		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.82

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K17

K17

# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

VOL 7,0 i

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
413 Y + 499	0,7	0,53 0,20 0	12,7 - 12,8 12,3 - 12,4 10,5 - 10,7 10,1 - 10,3

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ② and Governors

**Testoil-ISO 4113**

PE 6 A 90 D 320 RS 2547 RQ 250/1200 AB 1022 R

See Service Information VDT-I-DAT 004

Specifications apply to test tubing 1 680 750 015.

superseded 2.82

company DAF

engine: DT 615

113 kW (153 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing difference between control-rod travel 9 mm and max. = 2,5 - 3,5° camshaft.

Port closing at prestroke

2,20-2,30  
(2,15-2,35)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	7,1 - 7,3	0,3(0,45)			
250	6,9-7,1	1,1 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,6-20,4	650	20,0	9,8	1245-1265	250	8,5	100 min. 10,0 250 8,4-8,6 405-465=2,0 550 max. 1,0		-	-
VH = max. 46°				4,0 1500	1340-1370 0-1,0						

Torque-control travel

on flyweight assembly dimension a = - mm

Speed regulation: At 1245-1265 min<sup>-1</sup>

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes / mm 7
LDA 1000	0,7 bar 71,0 - 73,0 (69,0 - 75,0)		LDA 600	0 bar 50,0 - 52,0 (48,0 - 54,0)	250	7,0

Checking values in brackets

2.83

# D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 1000 <sup>rev/min</sup> decreasing pressure - in bar gauge pressure  
increasing

DAF 6,2 i

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
..RS 2547 + RQ..AB 1022 R	0,70	0,27 0,16 0	10,8 - 10,9 10,6 - 10,7 9,9 - 10,1 9,8 - 10,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4  
4. Edition

supersedes 6.82  
company RVI  
engine MIDR06.02-12  
125kw (170PS)

PES 6 MW 100/320 RS 1016  
RQV 300-1300 MW 25  
Komb. 0 403 446 123

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing mark 10,5° after  
port closing.

## A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10  
(2,95-3,15) mm (from BDCRW = 9,0-12,0)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,1 <sup>+0,</sup>	8,9 - 9,1	0,35 (0,6)			
300	5,8-6,0	0,95- 1,35	0,35 (0,55)			
900	11,1 <sup>+0,</sup>		0,5 (0,7)			
500	10,0 <sup>+0,</sup>		0,35 (0,6)			

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1300 1600	15,2-17,8 0 - 1,0				ca. 13	100 300 490-550 = 2,0	min. 7,5 5,8- 6,0		
ca. 62	10,1 4,0	1340-1350 1450-1580				3a				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b)	Fuel delivery characteristics (5a) high idle speed (5b)		Starting fuel delivery idle switching point (6)		Torque-control travel (5)	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min (4a)	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1300	0,67 bar 89,0-91,0 (87,0-93,0)	1340-1350*	LDA 900	0,67 bar 86,5 - 90,5 (84,5 - 92,5)	100 300	min. 100,0 9,5 - 13,5 (7,0 - 16,0)		
			LDA 500	0 bar 59,0 - 61,0 (57,0 - 63,0)	100-230 (80-250)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure

-2-

XXXXXXXXX				RVI	
Pump/governor	Setting	Measurement	Control rod travel- diminution difference		
	Gauge pressure = bar	Gauge pressure = bar	mm	(1)	
RS 1016 + MW25	0,25	0,67 0 0,22	10,8 - 10,9 11,1 - 11,2 10,1 - 10,2 10,3 - 10,4		

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specification Testoil-ISO 4113

## Fuel Injection Pumps and Governors

WPP 001/4 DEE 6,6 a  
1. Edition

En

PES 6 A 95 D 410 RS 2380  
RS 2508

EP/RSV 400-1100 A2B770DL

supersedes -

company: John Deere

engine: 6404 T

Manifold-pressure compensator (LDA)  
adjustment page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke 1,90-2,00 (1,85-2,05) mm (from BDC) Port-closing mark 14° after port closing.

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 44	1100 1180 1220	16,0 9,8 6,0	without auxiliary spring			ca. 21	400	5,1	1080	0
ca. 43	1100 1200 1400	ca. 9,8 ca. 5,0 0,3-1,7					200 400 500 720	19 - 21 5,5-5,7 3,3-4,4 0 - 1	450	0,7-1,0

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to rev/min							
rev/min 1	cm <sup>3</sup> /1000 strokes 2	3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1100	0,7 bar 85,5 - 87,5 (83,5-89,5)	1140-1150 * (1135-1155)	LDA 750	0,7 bar 95,0 - 98,0 (93,0-100,0)	100	19,0-21,0 mm RW	400	5,6	
			LDA 550	0 bar 63,5-69,5 (61,5-71,5)					./.

Checking values in brackets

\* 1 mm less control rod travel than col. 2

11.82

**D. Adjustment Test for Manifold Pressure Compensator**

DEE 6,6 a

Preliminary adjustment,  
dimension H = 21,8 mm

Test at n =

550

rev/min decreasing  
increasing pressure - in bar gauge pressure  
XXXXXXX

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
2380 + 770DL 2508 + 770DL	0,45	0,14 - 0,16	- 0,1 - 0,2 - 1,5 - 1,7
Change-over point (Hydraulic measurement)	max. 0,76	mind. 0,48	9 - 11 mm RW 19 - 21 mm RW

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

# Test Specifications

## Fuel Injection Pumps ②

### and Governors

PE 8 P 120 A 320 LS 3807 RO 300/1150 PA 511

1-8-7-2-6-3-5-4 je 45°  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

supersedes 3.82

company: Damiller-Benz

OM 422 LA

engine: 276 kW(375 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

 Port closing at prestroke  $4,0-4,1$   
 (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6 $\pm 0,1$	18,9-19,1	0,5(0,9)			
300	4,8-5,0	1,2-2,0	0,8(1,2)			
1150/600	11,6 $\pm 0,1$	C, Sp.2 u. 5	0,75(1,2)			
500	10,1 $\pm 0,1$	C, Sp. 5	0,75			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,1-20,8	600	20,0	10,7	1190-1205	300	4,3	100	min.6,0	-	-
VH =	max. 46°			4,0	1250-1280			300	4,2-4,4		
				1350	0 - 1,0			335-	375=2,0		

Torque-control travel  
on flyweight assembly dimension a =  mmSpeed regulation: At 1190-1205 min<sup>-1</sup>1 mm less control  
rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes / mm 7
LDA 900	0,7 bar 189,0-191,0 (186,0-194,0)	-	LDA 600	0,7 bar 182,0-186,0 (179,0-189,0)	100	140,0-160,0
LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)		LDA 500	0 bar 139,0-141,0 (136,0-144,0)		

Checking values in brackets

2.83

Testoil-ISO 4113

# D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

-2- MB 14,6 i

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 8 P .. LS 3807 + RQ .. PA 511	0,44	0,70 0 0,34	11,1-11,3 11,6-11,7 10,1-10,2 10,5-10,7

Notes

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)



# Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5c 6  
1. Edition

En

Testoil-ISO 4113

VA 4/100 H 1250 CR 68  
0 460 304 195

supersedes—  
company IHC  
engine D 206-TD 7 C

Nozzle-and-holder assembly  
1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm ± 0,04  
Setting of the pointer at a stroke of 1 mm in  
relation to outlet "A".

All test specifications are valid for  
Bosch Fuel Injection Pump Test Benches  
and Testers  
Test Instructions and Test Equipment  
VDT-WPP 161/4 B  
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm <sup>2</sup>	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	800	4,2-5,2 mm		
1 2 Supply pump pressure	800	5,1-5,6 kp/cm <sup>2</sup>		
1 3 Full-load delivery without charge-air pressure	800	60,5-61,5 cm <sup>3</sup> /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm <sup>3</sup> /1000 strokes		
1 4 Idle speed regulation	350	12,0-18,0 cm <sup>3</sup> /1000 strokes		3,0
1 5 Start 196 bar	100	mind. 90,0 cm <sup>3</sup> /1000 strokes		
1 6 Full-load speed regulation	1300	21,0-29,0 cm <sup>3</sup> /1000 strokes		

## 2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	180-300 (150-330)		
	mm	Beginn 400 800 1100 1150-1250		
		1,1-2,1 (0,8-2,4) (3,9-5,5) 6,1-7,1 (5,8-7,4) 7,0-7,7 (6,7-8,0)		
2 2 Supply pump	rev/min	200 800 1250		
	kp/cm <sup>2</sup>	2,1-2,6 (1,9-2,8) (4,9-5,8) 6,8-7,3 (6,6-7,5)		
Overflow delivery	rev/min	500 1250		
	cm <sup>3</sup> /10 s	55-100 (40-110) 55-100 (40-110)		

## 2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm <sup>3</sup> /1000 strokes	Charge-air pressure kp/cm <sup>2</sup>
End stop	Full	1350-1400 (1330-1420) 1300 1230-1250 1100 800 600	0  (20,0-30,0) Beginn 60,0-63,0 (59,0-64,0) (60,0-62,0) 53,0-56,0 (52,0-57,0)	
	Stop	1250	0	
Idle stop	Full	390-440 (370-460) 350	0  (11,0-19,0)	
End stop	Start	100 220-300	mind. 90,0	

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^{\circ}$ $\beta = 40 \pm 8^{\circ}$ $\gamma = 30 - 8^{\circ}$ $\delta = 60 \pm 8^{\circ}$	Pump Dimension $\bar{u}$ 3,0 mm Dimension $\bar{v}$ 24,6 mm

# Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 3,5c7

1. Edition

En

Testoil-ISO 4113

VA 4/100 H 1250 CR 68-1

0 460 304 231

supersedes

company IHC

engine D 206

Nozzle-and-holder assembly

1 688 901 020 (172 + 3 bar)

Pre-stroke setting 0,5 mm

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers  
Test Instructions and Test Equipment VDT-WPP 161/4 B  
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm <sup>2</sup>	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	800	4,2-5,2 mm		
1.2 Supply pump pressure	800	5,3-5,8 kp/cm <sup>2</sup>		
1.3 Full-load delivery without charge-air pressure	800	55,5-56,5 cm <sup>3</sup> /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm <sup>3</sup> /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm <sup>3</sup> /1000 strokes		3,0
1.5 Start	100	min. 90,0 cm <sup>3</sup> /1000 strokes		
1.6 Full-load speed regulation	1300	31,0-39,0 cm <sup>3</sup> /1000 strokes		

## 2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	170-320 (140-350)		
	mm	Beginn 400 800 1000 1100-1250		
		1,2-2,2 (0,9-2,5) (3,9-5,5) 5,7-6,7 (5,4-7,0) 7,0-7,7 (6,7-8,0)		
2.2 Supply pump	rev/min	200 800 1250		
	kp/cm <sup>2</sup>	2,1-6,2 (1,9-2,8) (5,1-6,0) 7,1-7,6 (6,9-7,8)		
Overflow delivery	rev/min	500 1250		
	cm <sup>3</sup> /10 s	55-100 (40-110) 55-100 (40-110)		

### 2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm <sup>3</sup> /1000 strokes	Charge-air pressure kp/cm <sup>2</sup>
End stop	Full	1380-1430 (1360-1450) 1300 1260-1280 1200 800 500	0  (30,0-40,0) Beginn 51,0-54,0 (50,0-55,0) (55,0-57,0) 48,0-51,0 (47,0-52,0)	
	Stop	1250	0	
Idle stop	Full	420-470 (400-490) 350	0  (11,0-19,0)	
	Start	100	mind. 90,0	
End stop		220-320		

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Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p><math>\alpha = 25 \pm 4^0</math></p> <p><math>\beta = 40 \pm 8^0</math></p> <p><math>\gamma = 30 - 8^0</math></p> <p><math>\delta = 60 \pm 8^0</math></p>	<p>Pump</p> <p>Dimension <math>\bar{r}_V</math> - mm</p> <p>Dimension <math>\bar{V}</math> - mm</p>

# Test Specifications Distributor-Type Fuel Injection Pump

**46**

WPP 001/4 HAN 3,1a 5

2 Edition

En

**Testoil-ISO 4113**

VA 6/100 H 1700 CR 119  
CR 119-1

0 460 306 108  
0 460 306 109

Nozzle-and-holder assembly  
1 688 901 020 (172 + 3 bar)

supersedes **6.82**  
company **Hanomag**  
engine **D 161 L**

Pre-stroke setting  $0.3 \text{ mm} \pm 0.02 (\pm 0.04)$   
Setting of the pointer at a stroke of 1 mm in  
relation to outlet "A".

All test specifications are valid for  
Bosch Fuel Injection Pump Test Benches  
and Testers  
Test Instructions and Test Equipment  
VDT-WPP 161/4 B  
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm <sup>2</sup>	Difference in delivery cm <sup>3</sup>
11 Timing device travel	1500	4,3-5,1 mm		
12 Supply pump pressure	1500	6,3-6,8 kp/cm <sup>2</sup>		
13 Full-load delivery without charge-air pressure	1200	49,0-50,0 cm <sup>3</sup> /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm <sup>3</sup> /1000 strokes		
14 Idle speed regulation	300	12,0-18,0 cm <sup>3</sup> /1000 strokes		3,0
15 Start	100	mind. 60,0 cm <sup>3</sup> /1000 strokes		
16 Full-load speed regulation	1800	26,0-34,0 cm <sup>3</sup> /1000 strokes		

## 2. Test Specifications

Checking values in brackets

21 Timing device	rev/min	650-810(620-840)	1500	1550-1700
	mm	Beginn	(4,0-5,4)	5,2-5,9(4,9-6,2)
22 Supply pump	rev/min	200	1500	1700
	kp/cm <sup>2</sup>	1,2-1,7(1,0-1,9)	(6,1-7,0)	7,0-7,5(6,8-7,7)
Overflow delivery	rev/min	500		1700
	cm <sup>3</sup> /10 s	55-100(40-110)		55-100(40-110)
23 Fuel deliveries				
Speed control lever	Delivery lever	rev/min	cm <sup>3</sup> /1000 strokes	Charge-air pressure kp/cm <sup>2</sup>
End stop	Full	1880-1960 (1860-1980)	0	
		1800	(25,0-35,0)	
		1700	42,0-45,0 (41,0-46,0)	
		1200	(48,5-50,5)	
		500	39,0-43,0 (38,0-44,0)	
	Stop	1700	0	
Idle stop	Full	450-500 (430-520)	0	
		100	mind. 60,0	
End stop	Start	150-250		

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12.82

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 55 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV = 4,0 mm Dimension V = 24,6 mm

# Test Specifications Fuel Injection Pumps and Governors

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WPP 001/4 SCA 8,0 d

3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 720 RS3034 RQV 200-1200 PA275R  
PE 6 P 110 A 720 RS3035 EP/RSV 350-1200 P1/310R./.

superseded 2.79  
company Scania  
engine DS 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,6+0,1	12,1 - 12,3	0,4(0,8)			2,5 ± 0,1 ** (max. 2,2-2,9)
225	3,9-4,1	0,9 - 1,3	0,2(0,5)**			

Adjust the fuel delivery from each outlet according to the values in

\*\* In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly

## B. Governor Settings

RQV.. 275R

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca.9	100 225 310-	min.5,5 3,9-4,1 370=2,0	200 1000 1240	0,4-1,4 6,3-6,7 8,2
ca.62	10,6 4,0 1500	1240-1250 1370-1400 0 - 1,0							-	-

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	mm 9
LDA 1200	0,7 bar 121,0 - 123,0 (118,0 - 126,0)	1240-1250*	LDA 600	0,7 bar 119,0 - 123,0 (116,0 - 126,0)	100 225	200-250 9,0 - 13,0		
			LDA 500	0 bar 80,0 - 84,0 (77,0 - 87,0)	1300	4,5 mm RW dispersion max. 4		./.

Checking values in brackets

\* 1 mm less control rod travel than col 2

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1.83

**B. Governor Settings**

EP/RSV.. 310R

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
ca. 71	1200	16,0				ca. 31	350	6,0	-	-
	1250	11,9								
	1300	6,3								
⑤	1250	10,8-12,4	without auxiliary spring				100	19 - 21		
	1320	2,4- 6,0	with auxiliary spring				350	5,7-6,3		
	1420	0 - 1					400	3,3-4,5		
							520	0 - 1		

①A

**C. Settings for Fuel Injection Pump with Fitted Governor**

② Full-load stop		⑥ Rotational-speed limitation	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min						
rev/min	cm <sup>3</sup> /1000 strokes	3	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	
1200	115,0-117,0 (112,0-120,0)	1240-1250*	600	119,0-123,0 (116,0-126,0)	100 350 310	200-250 9 - 13 4,0 mm RW Dispersion max. 4		

Checking values in brackets

\*1 mm less control rod travel than col. 2

**Testoil-ISO 4113****D. Adjustment Test for Manifold Pressure Compensator**Test at n = 500 rev/min decreasing pressure - in bar gauge pressure (g.p.)  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	(g.p.)	(g.p.)	mm (1)
PE 6 P..RS 3034 + RQV..PA 275 R	0,40		11,2 - 11,7
		0,70	11,6 - 11,7
		0	10,0 - 10,1
		0,25	10,2 - 10,4

Notes:

(1) when n =

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)



# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 1 1  
2. Edition

En

PE8P120A320LS3807 RQV 300-1150PA526-2  
1-8-7-2-6-3-5-4 je  $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$   
Values apply to  
engine nozzle-and-holder assemblies 1 688 901 019  
and engine fuel-injection tubing 1 680 750 067

superseded 0.82  
company Daimler-Benz  
engine OM 422 LA  
276 kW (375PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke  $4,0-4,1$   
(3,95-4,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> /100 strokes	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	11,6+0,1	18,9-19,1	0,5(0,9)			
300	4,8-5,0	1,2- 2,0	0,8(1,2)			
1150	11,6+0,1	C, Sp. 1 u. 2	0,75			
600	11,6+0,1	C, Sp. 4 u. 5	0,75			
500	10,1+0,1					

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 10	100 300	min. 6,0 4,2-4,4	250 550 850 1150	1,0-1,2 3,4-3,7 4,9-5,3 7,6
ca. 65	10,6 4,0 1350	1190-1200 1230-1260 0- 1,0				320-465				
						③a				

Torque control travel a = mm

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 900	0,7 bar 189,0-191,0 (186,0-194,0)	1190-1200*	LDA 600	0,7 bar 182,0-186,0 (179,0-189,0)	100	140,0-160,0	-	-
LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)		LDA 500	0 bar 139,0-141,0 (136,0-144,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE8P..LS3807 + .. PA526-2	0,44	0,70 0 0,34	11,1-11,3 11,6-11,7 10,1-10,2 10,5-10,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

# Test Specifications

## Fuel Injection Pumps ①

### and Governors

WPP 001/4 RVI 12,0 a  
Edition

En

supersedes 8.81

company: RVI

engine: MIDR 063540  
223 kW (304 PS)

PES 6 P 120 A 320 RS 3070 RQV 250-1100 PA 495

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

(3,45-3,65)

Port closing at prestroke

3,50-3,60

mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,9-13,0	19,4 - 19,7	0,5(0,8)			
250	5,2-5,4	1,5 - 2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100 1400	15,2-17,8 0 - 1	-	-	-	ca. 12	100 250	min. 6,8 5,2-5,4	200 500 850 1150	0,3-0,6 3,0-3,2 5,0-5,2 8,4
ca. 66	11,9 4,0	1160-1170 1235-1265				290-400 (3a)				

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a High idle speed ⑤b rev/min cm <sup>3</sup> /1000 strokes		Starting fuel delivery Idle switching point ⑥ rev/min cm <sup>3</sup> /1000 strokes		Torque-control travel ⑤ rev/min Control rod travel mm	
1	2	3	4	5	6	7	8	9
LDA 1100	0,7 bar 194,0-197,0 (191,0-200,0)	1160-1170	LDA 1100	0 bar 151,0-154,0 (148,0-157,0)	100	130,0-165,0		
					100-170 (80-190)			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.83

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Testoil-ISO 4113

L13

L13

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3070 + RQV..PA 495	0,27		12,2 - 12,3
		0,70	12,9 - 13,0
		0	10,6 - 10,7
		0,22	11,2 - 11,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 14,6 g 1

En 4. Edition

PE 8 P 120 A 320 LS 3807

RQ 300/1150 PA 511-2

supersedes 10.82  
company: Daimler-Benz  
OM 422 LA  
engine: 276 kW (375 PS)

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° ±0,5° (±0,75°)

Values apply to  
engine nozzle-and-holder assemblies 1 688 901 019  
and engine fuel-injection tubing 1 680 750 067  
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

**Testoil-ISO 4113**

## A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6+0,1	18,9 - 19,1	0,5(0,9)			
300	4,8-5,0	1,2 - 2,0	0,8(1,2)			
1150	11,6+0,1	C, Sp.1u. 2	0,75			
600	11,6+0,1	C, Sp.4u. 5	0,75			
500	10,1+0,1					

Adjust the fuel delivery from each outlet according to the values in .

## B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4		Test specifications rev/min 6		Test specifications Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
600	19,1 - 20,8	600	9,9	10,6	1195-1210	300	4,3	100	min.6,0	-	-
				4,0	1250-1280			300	4,2-4,4		
								335-375	=2,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195 - 1210 min<sup>-1</sup> 1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm <sup>3</sup> /1000 strokes 2				cm <sup>3</sup> /1000 strokes 5		cm <sup>3</sup> /1000 strokes/mm 7	
LDA 900	0,7 bar 189,0 - 191,0 (186,0 - 194,0)	-		LDA 600	0,7 bar 182,0 - 186,0 (179,0 - 189,0)	100	140,0 - 160,0
LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)			LDA 500	0 bar 139,0-141,0 (136,0-144,0)		

Checking values in brackets

1.83

## D. Adjustment Test for Manifold Pressure Compensator

Test at  $n = 500$  rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3807 + RQ..PA 511-2	0,44		11,1 - 11,3
		0,70	11,6 - 11,7
		0	10,1 - 10,2
		0,34	10,5 - 10,7

Notes.

(1) when  $n =$

rev/min and  
gauge pressure =

bar (= maximum full-load control rod travel)

②

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1q6

2. Edition

En

**Testoil-ISO 4113**

PES 6 P 120 A 720 LS 388

RQ 250/1100 PA 452

6 - 2 - 4 - 1 - 5 - 3 je 60°

superseded 3.80

company: MAN

engine: D 2566 MK

235 kW (320 PS-1)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

(2,95-3,15)

Port closing at prestroke

3,00-3,10

mm (from BDC)

Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1-13,2	22,7 - 22,6	0,5(0,9)			
250	6,3-6,5	1,1 - 1,7	0,8(1,2)			
1100/650/500/500		C, Sp. 4-5				

Adjust the fuel delivery from each outlet according to the values in

## B. Governor Settings

Checking of slider PRG check rev/min 1		① Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		④ Test specifications Control rod travel mm 4		rev/min 5		Idle speed regulation Setting point rev/min 7		⑤ Test specifications Control rod travel mm 8		rev/min 9		Torque control rev/min 11		③ Control rod travel mm 12	
600	19,2-20,8	600	20,0	10,3	1145-1160	250	6,4	100	min.7,9	1100	11,3-11,4	250	6,3-6,5	1000	11,8-12,0	900	12,6-12,7	750	13,1-13,2
1400	0 - 1,0	VH	ca. 490	4,0	1185-1215									350-390 = 2,0					

Torque-control travel  
on flyweight assembly dimension a =

0,7

mm

Speed regulation: At

1 mm less control  
rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		② cm <sup>3</sup> /1000 strokes 2		Control rod stop rev/min 3		③a Fuel delivery characteristics rev/min 4		③b cm <sup>3</sup> /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		⑥ cm <sup>3</sup> /1000 strokes / mm Control rod travel 7	
LDA 750	1,0 bar 222,0 - 226,0 (219,0 - 229,0)					LDA 650	1,0 bar 214,0 - 220,0 (211,0 - 223,0)			100		225,0 - 245,0	
LDA 500	0,335 bar 134,0 - 140,0 (131,0 - 143,0)					LDA 500	0 bar 107,0 - 111,0 (104,0 - 114,0)			100-170		(80-190)	
LDA 1100	1,0 bar 184,0 - 190,0 (181,0 - 193,0)												

Checking values in brackets

(Sp. 4-5 increase by  $\pm 3,0 \text{ cm}^3$ )

11.82

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L17

L17

## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

MAN 11,1 q 6 -2-

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..LS388 + RQ..PA 452	0,34	1,0 0 0,61	10,9 - 11,0 13,1 - 13,2 9,4 - 9,5 12,5 - 12,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)



①

# Test Specifications

## Fuel Injection Pumps ①

### and Governors

WPP 001/4 SCA 14,0 c 1

4. Edition

En

**Testoil-ISO 4113**

PE 8 P 110 A 920/4 LS 3020

RQV 250- 1 000 PA 306

supersedes 2.82  
company: Scania1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je 45°  $\pm 0,5^\circ$  ( $\pm 0,75^\circ$ )engine: DS 14-01  
295 kW (401 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke <sup>3,3-3,4</sup>  
(3,25-3,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1 000	13,5 $\pm$ 0,1	16,3 - 16,5	0,4(0,8)			3,3 $\pm$ 0,1 (3,0-3,5)
225	3,9-4,1	0,9 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in 

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1 000	15,2-17,8	-	-	-	ca. 8	100	min.5,5	200	1,0-1,2
ca.61	12,5	1 040-1 050					225	3,9-4,1	470	3,4-3,8
	4,0	1 145- 1 175							750	5,2-5,5
	1 300	0-1,0						275-335=2,0 mm	1 000	7,7

Torque control travel a =  mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1 000	0,7 bar 163,0-165,0 (160,0-168,0)	1 040-1 050*	LDA 600	0,7 bar 165,0-169,0 (162,0-172,0)	100	190,0-240,0 / 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 127,0-131,0 (124,0-134,0)				

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.83

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3020 + .. PA 306	0,7	0 0,44 0,32	13,5-13,6 12,0-12,1 13,1-13,2 12,3-12,5

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

# Test Specifications

## Fuel Injection Pumps ①

### and Governors

WPP 001/4 VOL 7,0 k 1

2. Edition

En

PE 6 P 110 A 320 RS 423

RQV 335-1100 PA 435

supersedes 5982

company Volvo

engine TD 70 G

138 kW (188 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

 Port closing at prestroke  $3,0 - 3,1$   
 $(2,95 - 3,15)$  mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> /100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,7+0,1	9,9 - 10,1	0,4(0,8)			2,5 ± 0,1
335	4,5-4,7	0,9 - 1,3	0,3(0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

### B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 11	100	min. 7,0	300	1,4-1,6
ca. 64	9,7 4,0 1300	1140-1150 1210-1240 0-1,0					335	4,5-4,7	500	3,2-3,5
							450-510 = 2,0		800	5,0-5,2
									1100	7,9

Torque control travel a = mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm <sup>3</sup> /1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	0,75 bar	1140-1150 *	LDA	0 bar	100	150,0-180,0	-	-
700	99,0-101,0 (96,0-104,0)		700	77,0-80,0 (74,0-83,0)	335	11,0-15,0		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.83

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## D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure  
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar	
PE6P..RS 423 + ..PA 435	0,75	0 0,17 0,09	10,7 - 10,8 9,5 - 9,6 10,4 - 10,5 9,8 - 10,0

### Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)